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(Hrsg.)

**Anatomy of Change.  
Architecture and Time in Ticino**

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## Temporär, zirkulär, dauerhaft – Strategien für den Bestand

- Von temporär, zirkulär bis dauerhaft – Strategien für den Umgang mit dem Bestand für verschiedene Ansprüche
- Die vorgestellten Projekte adressieren zentrale Fragen wie Klimaveränderung, demografischen Wandel und Ressourcennutzung

Das Zusammenspiel von Klimawandel, demografischem und ökonomischem Wandel führt zu tiefgreifenden und unvorhersehbaren Veränderungen in Architektur, Landschaft und urbanem Raum.

Gleichzeitig steht die Forderung nach einer resilienten, zukunftsfähigen Architektur. Doch unsere Bauten halten immer weniger lang. Die gebauten Strukturen sind häufig zu starr, um sie an veränderte Bedürfnisse anzupassen. So bestimmt die Nutzungsdauer die Lebensdauer eines Hauses und nicht umgekehrt.

Versteht man Zeit und Dauer als entscheidende Faktoren einer nachhaltigen Architektur, erfordert dies veränderte Herangehensweisen. Diese werden in der Publikation untersucht.

Das Tessin ist hierfür ein ideales Untersuchungsgebiet für Fragestellungen, die die Schweiz und ganz Europa betreffen, da es besonders stark von diesen Veränderungen betroffen ist. Es besticht durch sein einzigartiges Mikroklima, ein weitverzweigtes Infrastrukturnetz, den Zugang zu Bau- und Energieressourcen, vielfältige Migrationsströme und ein reiches kulturelles Erbe.

Im Rahmen von drei Semestern entwickelten Studierende der ETH Zürich Projekte mit unterschiedlichen Zeithorizonten – von temporär, zirkulär bis dauerhaft. Diese Ansätze adressieren zentrale Aspekte des Tessiner Territoriums – wie Klimaveränderung, demografische Alterung und Ressourcennutzung – und eröffnen neue Strategien für den Umgang mit architektonischen Transformationsprozessen. Wandel wird dabei als konstitutives Element von Resilienz begriffen.

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Die Arbeiten sind durch Pläne, Konstruktionsdetails, Architekturmodelle, künstlerische Bildarbeiten und Collagen umfassend dokumentiert. Sie illustrieren nicht nur die konkreten Projekte, sondern auch die zugrunde liegenden Entwurfsideen und deren Vermittlung. Dabei wird die zentrale Rolle des Narrativs zur Vermittlung neuer Strategien deutlich.

## Über die Herausgeberschaft

Die sechs Autorinnen und Autoren sind an der Professur von Elli Mosayebi an der ETH Zürich tätig und verfolgen zudem eigene Projekte:

**Elli Mosayebi** ist Partnerin bei EMI Architekt\*innen.

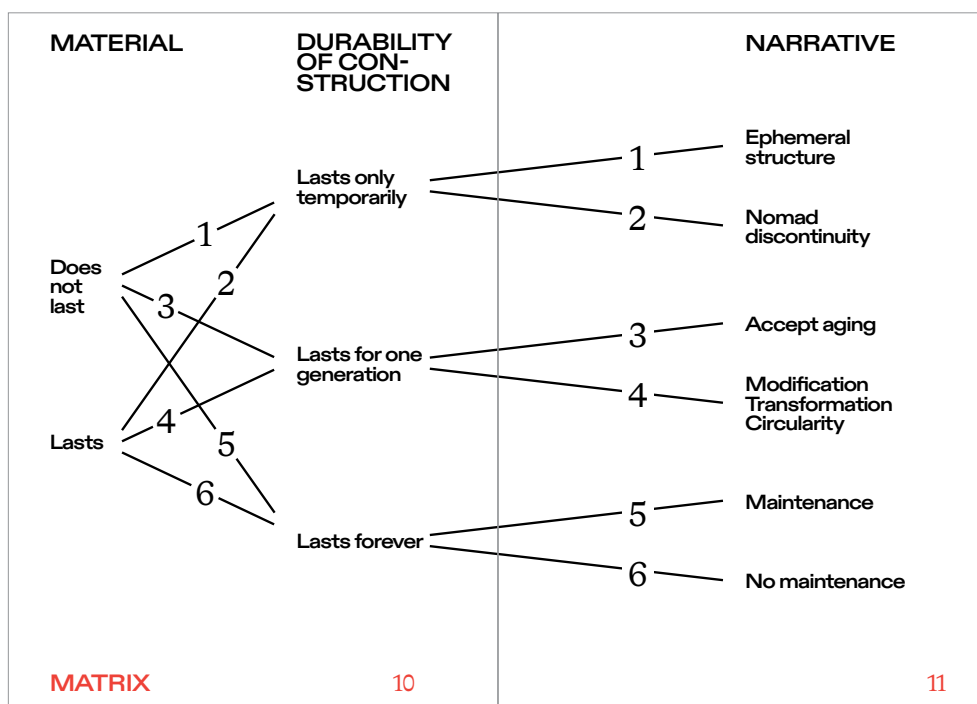
**Violeta Burckhardt** betreibt ihr Landschaftsarchitekturbüro studio erde.

**Julian Meier** führt sein eigenes Architekturstudio.

**Matthew Phillips** leitet das interdisziplinäre Studio HSZJN398.

**Nelly Pilz** arbeitet mit ihrem Büro studiopilz an Projekten an der Schnittstelle von Architektur und Kunst.

**Franziska Singer** setzt mit ihrem eigenen Büro den Schwerpunkt auf Transformation.



## 2. NOMAD DISCONTINUITY



- the construction is only temporary
- living like nomads

The most radical way to minimize our ecological footprint is to eliminate permanent lodging. Instead, individuals remain in continuous movement, carrying only the essentials. Their migrations align with seasonal rhythms, shifting between summer and winter quarters in response to environmental conditions.

## 3. ACCEPT AGING



- the construction only lasts for one generation
- aging and decay are accepted

Architecture is an unstable assemblage of materials (Ákos Moravánszky), bound for a certain period of time. Without maintenance and renewal, every building is exposed to the forces of nature and will eventually deteriorate. What if deterioration is an integral part of the architectural intention? How do we plan deterioration?

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## 4. MODIFICATION, TRANSFORMATION, CIRCULARITY



- the construction lasts only one generation
- the transformation of the building and the circularity of the components are part of the architectural project

Until the mid-20th century, the paradigm was to extend the service life of buildings. According to Uta Hassler, early concepts of prefabrication took into account the ability to dismantle and reuse building components, thus emphasizing physical permanence (Hassler 2011). The idea of buildings as repositories of materials is not new; historically, it has been driven by economic considerations and resource efficiency.

This narrative follows a simple principle: one house build for one generation! Since the longevity of construction methods often falls short of the durability of the materials themselves, projects are created as tailored responses to transient needs. In this view, buildings become provisional constellations in an ongoing cycle of disassembly and recomposition.

## 5. MAINTENANCE



- the construction lasts forever
- ongoing maintenance is required

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The accelerated process of global warming has disrupted seasonal growth patterns, atmospheric conditions and weather cycles, leading to extreme weather events that significantly threaten our living environment and challenge our way of life. In Switzerland, these effects are exacerbated by the presence of mountain ranges that dominate much of the country's landscape. The Swiss Alps are a collection of delicate ecosystems undergoing rapid transformations. These changes not only alter their immediate surroundings but also affect landscapes that extend far beyond Switzerland's borders. The interconnectedness of ecosystems means that shifts in the alpine environment, such as melting glaciers, altered precipitation patterns and biodiversity loss, ripple outward, affecting broader ecological, climatic and hydrological systems in Switzerland and Europe.

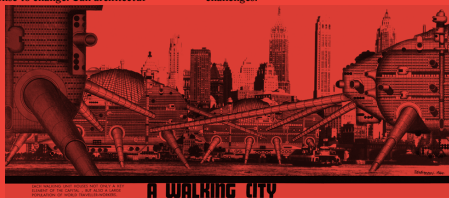
Extreme weather events are characterized by their transient, and volatile nature, often leaving little time for preparation or response. These events – such as intense storms, flash floods, heat waves and sudden snowfalls – pose significant risks to the communities and ecosystems in which they occur. The suddenness with which they manifest amplifies their threat, frequently leading to infrastructural damage, loss of property and, in severe cases, endangering the lives of those inhabiting the affected areas.

The unpredictability of these climatic shifts demands a departure from static architectural paradigms. It calls for the potential of adaptive and highly responsive structures that focus on temporality as a response to change. Can architectural

## WEATHER AS AN EVENT. STABLE ARCHITECTURE IN UNSTABLE ENVIRONMENTS

interventions act as mediators and offer solutions through precise calibration and collaboration with their environments, dynamically adjusting through regulation, enhancement, attenuation, rejection or energy containment? Through this new approach, can we leverage the changing climatic conditions as a departure point for the production of architecture while simultaneously acknowledging the landscape as an integral agent in architectural discourse?

Ticino, Switzerland's southernmost canton and the only one south of the Alps, is particularly vulnerable to abrupt weather changes due to its unique geography. This region frequently experiences some of the most severe extreme weather events in the country, making it a key area for studying the effects of climate change. In Ticino, these impacts are felt even more acutely, with an increase in heavy rainfall, flooding and unpredictable shifts in weather patterns. *Ticino Temporale*, the title of the design studio for the Autumn 2022 semester, explored how architectural designs could adapt to the region's dynamic and changing climate and proposed innovative solutions to these environmental challenges.

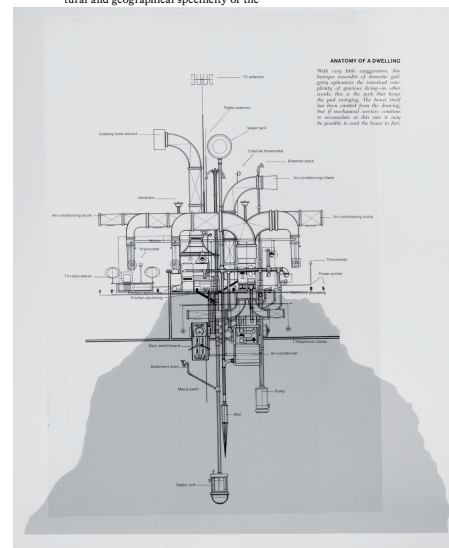


Ron Herron's Walking City concept (Chicago: Moving New York, 1964) featured moving structures designed to adapt to and engage with their surroundings and the landscape.

Viviana Burckhardt, Matthew Phillips

The following projects – *Wind Catchers*, *La Cristallina*, *Hydria*, *Moor is More* and *A Fish Odyssey* – synthesise the evolutionary concept of adaptation with a nuanced understanding of weather and climate. From the peaks of the Alps to the basins of Ticino's lakes, the territory is changing. Water, descending from the sky and carried by winds in the form of rain or snow, winding through rivers and plunging into subaquatic depths, emerges in the projects as both a material resource and a dynamic agent of transformation. Within this kinetic landscape, architecture becomes an adaptive force – rooted not only in the cultural and geographical specificity of the

Ticino region, but also in the anticipatory response to impending climate extremes. These projects engage with architecture's potential for resilience and fluidity, emerging as structures in a constant state of flux. They envision possible futures and function as experimental sites for speculative research.



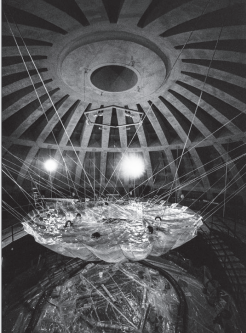
*The Anatomy of a Dwelling*. Illustration by François Dallegret to Reynier Bauman's essay "A Home is Not a House," 1985. The house as an organism that supports living by integrating modern technical services and functions.

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**Drought  
(Hydrant)**

The *Hydria* project by Oscar Lussi and Jan Zimmermann also responds to extreme conditions to address issues of water supply and demand. During the summer months in Ticino, as temperatures ascend, accelerated evaporation reduces the amount of water stored within soils, rivers and lakes. In Switzerland, drought is defined as a prolonged period during which less than one millimeter of precipitation is recorded at a weather station. This phenomenon transforms landscapes and disrupts the lives of their inhabitants. In 2022, Switzerland saw its lowest rainfall since local measurements began, and between June and August of that year, less than 40 percent of the expected rain fell in the country's southernmost regions. Increased heat waves, lack of rainfall, sunshine duration, higher temperatures and lower relative humidity that the region is now experiencing create the perfect climatic variables that lead to drought and forest fires – a common occurrence in this region and a threat to the local flora and fauna. When this extreme situation occurs, as it did in Centovalli in 2022, large fires can rage for days. The heavy rainfall that the region routinely experiences in the late summer and autumn is




Water submersed inside the dome of ETH Zurich, 1985.  
Temporary receptacles for water as social infrastructures

countered by the drought conditions in the late winter and early summer months, when forest fires are most likely to occur. The discrepancy between water resources and the lack of infrastructure to reach these remote forest regions makes emergency response particularly challenging.

*Hydria* challenges this discrepancy by introducing autonomous temporary water storage devices in remote Alpine locations. The strategically placed structures collect water at critical locations to address the growing imbalance between supply and demand, serving as crucial water-gathering points for firefighting helicopter operations in this mountainous terrain. The temporary, lightweight octagonal metal structures, lined with a thin fabric roof membrane, can be delivered by helicopter to remote alpine "black spots" in the firefighting network. As the cable-supported fabric canopies fill with rainwater during the peak late summer and autumn periods and are emptied during wildfire events in the spring, the space below adapts and reacts to the rhythm of natural filling and human-activated emptying.

The structures not only harvest rainwater but also provide shelter in the process. The rigidity and shape of the roof structures change constantly throughout the year – a shifting skin that both holds and houses. Without a definitive form, the structure functions as both a roof and a container that, when holding water, transforms into an artificial bathing space – creating temporary public zones in the high Alps where recreation and utility converge. This flexible infrastructure nurtures exchange and fosters a sense of community.





Forest fire in Ticino, 2022. Inaccessible areas in the Alps require potential solutions. These function as networks that together constitute mobile fire management practices

**Heavy Rains  
(Slow Rivers)**

The canton of Ticino is renowned for its microclimate, Mediterranean weather and dramatic rainfall patterns. These episodes occur briefly yet intensely during the late summer and autumn months, when the mountains release torrents of rainwater, rejuvenating the valleys below. While prolonged periods of continuous rainfall extend into early winter, the erratic and sudden summer downpours pose the greatest risk.

For millennia, rivers from the Alps have descended into the valley, feeding the southern lakes. However dire predictions of intensified rainfall patterns are raising concerns over heightened flood risks bringing Ticino's robust water infrastructure to a critical tipping point. This is due to rising atmospheric temperatures and the escalating levels of moisture evaporating from nearby water bodies – a spectacle that culminates in extreme rainfall. In the summer of 2024, massive amounts of rain wreaked havoc across the valley,



Floodplains and levees in Ticino, 1951, 1965. Modern water correction principles are unable to contain water once a threshold has been reached. The potential to counteract excessive rains exists in hybrid adaptable systems

with some areas receiving up to 250 liters of rain per square meter. This deluge inundated basements and put significant strain on the Ticino River canal system, threatening crops, industries and people.

The Magadino Plain, the focus of the *Moor is More* project by Senta Fahrlander and Michael Utiger, has historically served as a natural regulator of water fluctuations in Lake Maggiore. However, resource scarcity, food shortages and health concerns prompted the canalization of the rivers and the complete drainage of the marshlands along their banks. Canalization efforts began at the end of the 19th century and expanded between the 1920s and well into the 1950s. Today, *Moor is More* seeks to counteract the rapid flow of water by offering an alternative solution that utilizes a localized water distribution infrastructure.

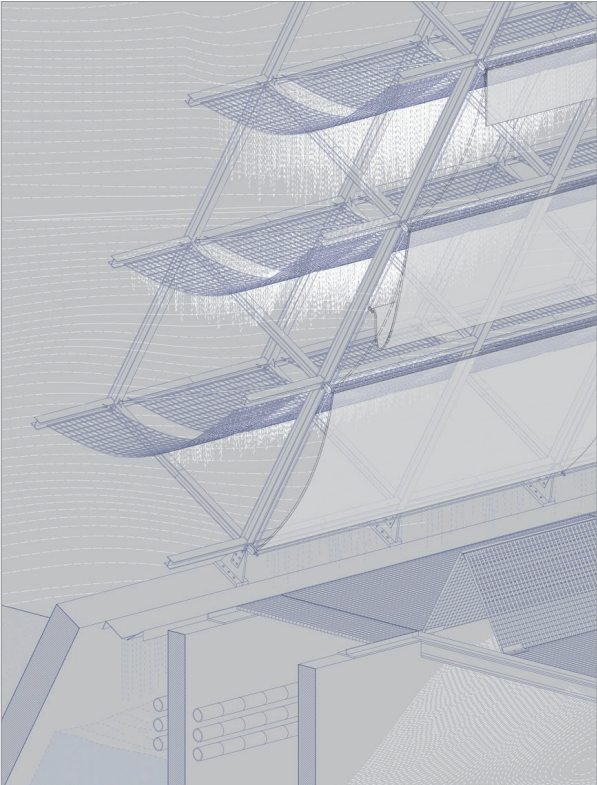
*Moor is More* controls the infiltration of water into the ground by directing it into retention infrastructure, thereby enriching local water bodies and facilitating distribution. Along the north-south trajec-

HYDRIA

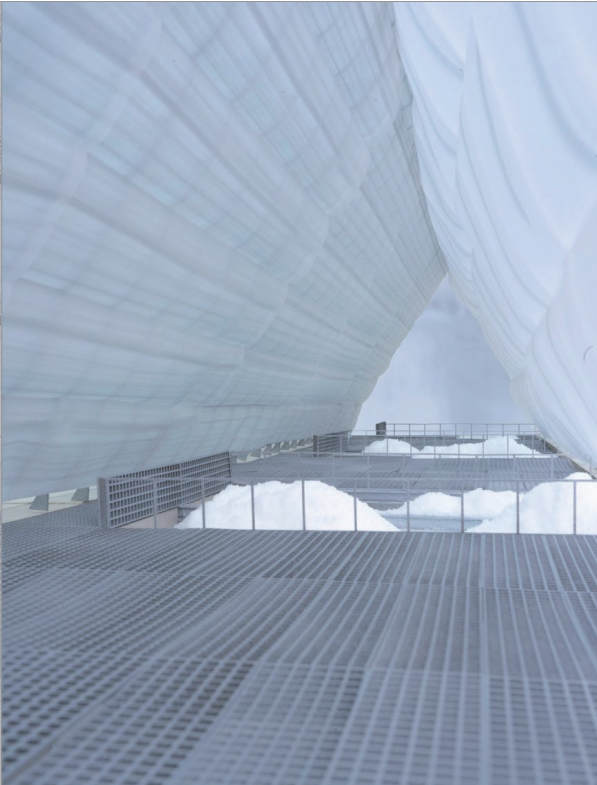
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MOOR IS MORE

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La Cristallina



Marco Weibel / Philip Einsbas / Silvan Muff

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*The Anatomy of a Dwelling*. Illustration by François Dallegret to Reyner Banham's essay "A Home Is Not a House," 1965. The house as an organism that supports living by integrating modern technical services and functions



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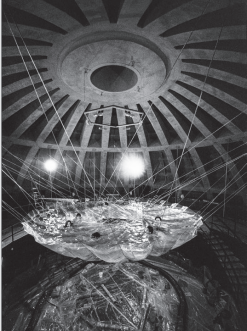
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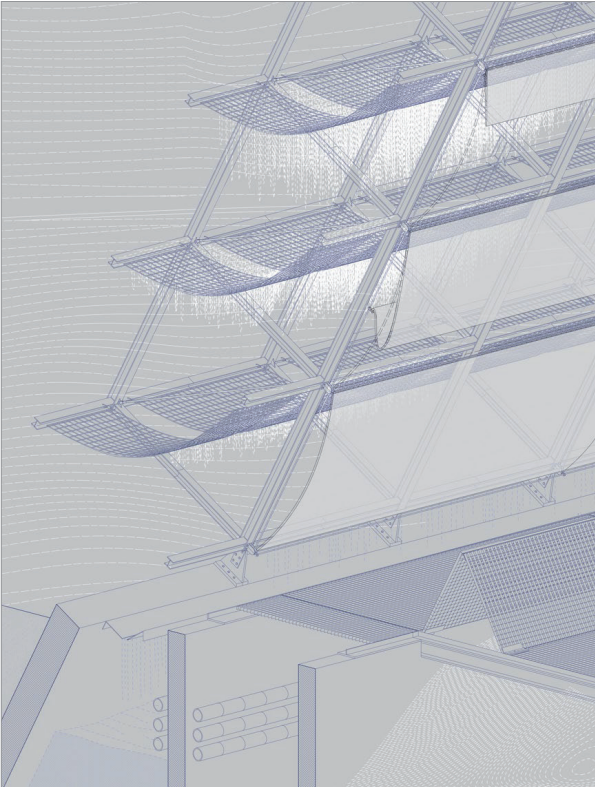
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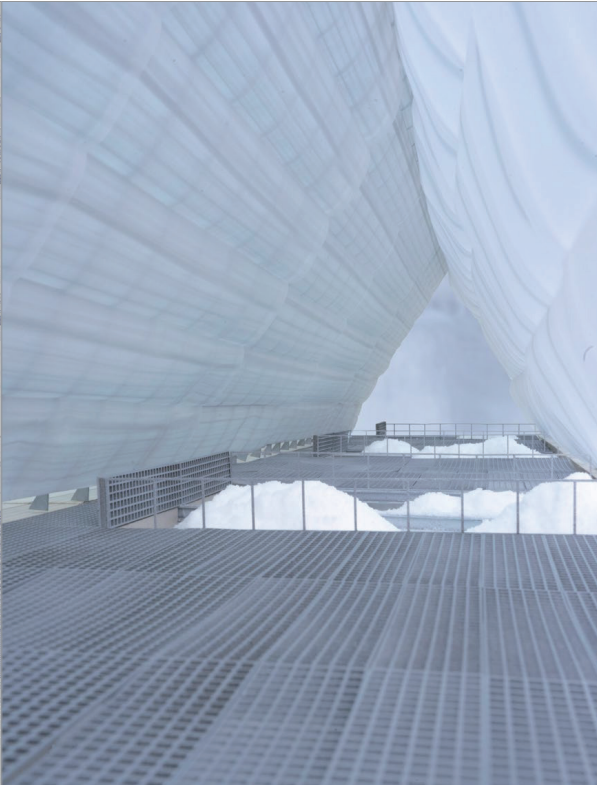
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**MOOR IS MORE**

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La Cristallina



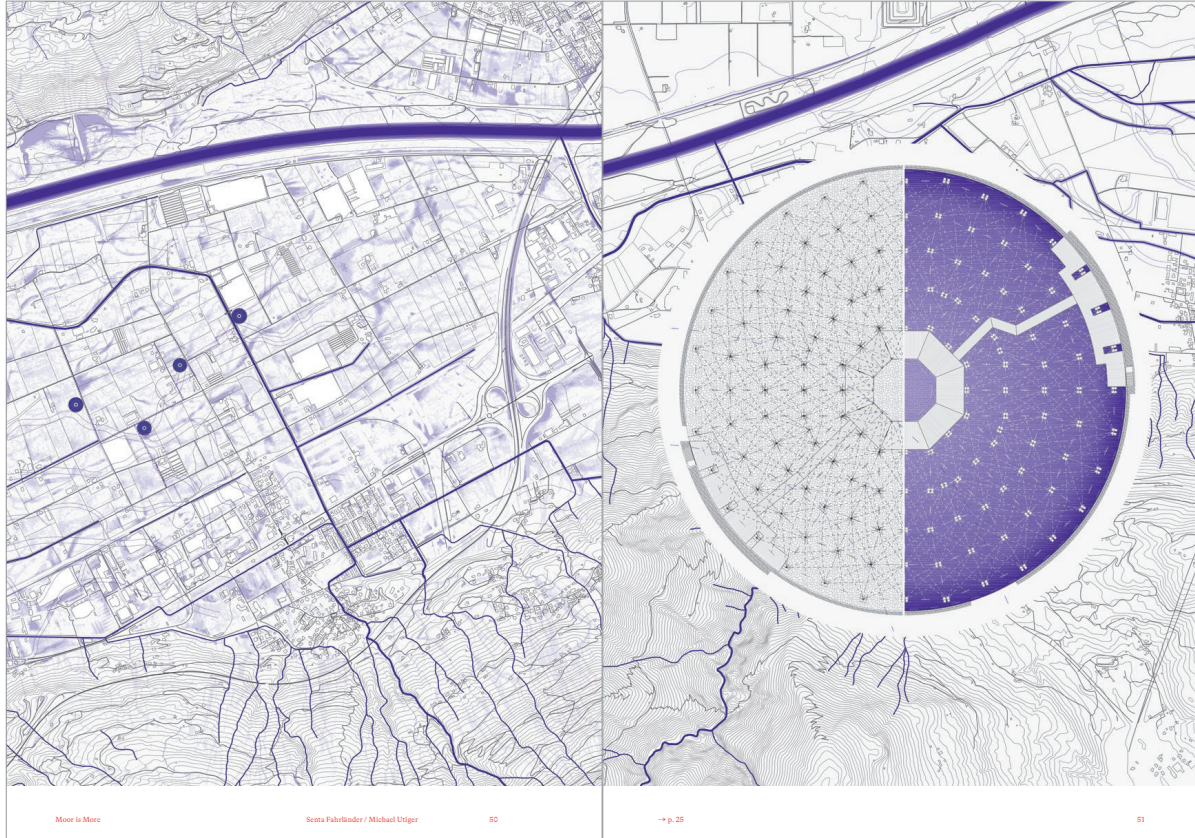
Marco Weber / Philip Einsbas / Silvan Muff

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Moor to Meer

Santa Fahländer / Michael Utiger

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Over the past 150 years, Ticino has been shaped by profound economic and social transformations. Repeated periods of growth and shrinkage have alternated in varying cycles.

Until the beginning of the 20th century, life in the mountain valleys of Ticino was dominated by laborious and sometimes scattered small-scale agriculture, livestock farming and forestry on the steep slopes with dense forests and high-altitude summer pastures. The drastic industrialization that took place in other parts of Europe in the 19th century was largely absent. Due to the difficult economic conditions, many people from Ticino left home in search of work and better wages in other parts of Switzerland or abroad. It was not until the 20th century, with the use of modern machinery and new economic opportunities, that the way agricultural land was cultivated began to change. With the spread of industrial production, subsistence farms were no longer operated by subsequent generations. Agricultural buildings were either converted or left to deteriorate.

In the first half of the 20th century, the flourishing global trade in goods, the incipient division of labor and the creation of national infrastructure to meet the needs of a modern work and leisure society led to rapid economic and spatial change, with the population concentrating in the urban centers, on the lakes of Ticino and in the main valleys between Airola and Chiasso. Private and public construction began, leaving visible traces in its wake. National and regional roads, railroads and large infrastructure projects for energy production were built. Beginning in the 1950s, numerous dams, the A2 Autobahn in Ticino and the Gotthard Road Tunnel were erected. The growing demand for housing led to extensive new construction across the urban agglomerations of Bellinzona, Locarno, Lugano, and Mendrisio-Chiasso, particularly in the form of single-family houses.

With the economic and demographic changes of the network economy, the demand for modern and comfortable residential and vacation properties increased from the 1960s onward. The local construction and real estate industry developed into a speculative sector. The building boom was supported by the high availability of building land and industrialized construction techniques, but also

## BETWEEN GROWTH AND SHRINKAGE – THE DISCOVERY OF CIRCULARITY

by new financing options. More was built than was needed. Despite stagnating or shrinking populations in many places, speculation in Ticino's municipalities continues to this day. In the last decade, between 400 and 600 new apartment buildings were built each year. However, even the large municipalities in the main valleys have grown only slightly in recent years and a 5.1 percent decline in the permanent resident population is projected for Ticino as a whole by 2050.

These processes of change have slowed in recent decades. The financial sector has shrunk massively due to changes in international regulations, the tourism sector is stagnating, and the aging of society coupled with the departure of the younger population poses new challenges for the region. A growing proportion of the working population commutes daily between work and home. A third of jobs now go to cross-border commuters from Italy.

This particular situation, with its recurring cycles of upswing, boom, downturn and crisis, predestines Ticino for the study and development of circularity. The projects described below offer exemplary responses to fluctuating population figures, changeable and adaptable forms of housing and a cultural heritage threatened by oblivion. Here, circular strategies for materials and construction are applied in different ways, anticipating future transformation processes and their side effects. The starting point is the heterogeneous building stock from different centuries.

### Cultural Heritage and Circularity

Ticino's agrarian past is still visible in numerous abandoned agricultural estates, but many surviving examples of architectural heritage are in danger of falling into disrepair and oblivion. The project *Future Inheritance* by Pauline Sauter and Elischa Bischof explores the question of

how circular systems can contribute to restoring abandoned agricultural properties as material cultural heritage and to communicating their historical significance to the general public. For the 15th-century Masseria di Vigino in the Mendrisiotto region—a heritage-listed building at imminent risk of collapse—this case study proposes a phased restoration concept aimed at raising public awareness.

Metal scaffolding supports the dilapidated exterior walls, allowing the entire estate complex to be wrapped in an architectural textile. This outer skin makes the metamorphosis of the cultural asset visible from afar. In this way, a temporary spatial layer is created around the existing building, an on-site infrastructure that protects the numerous steps of the comprehensive restoration and at the same time serves as a place for commu-

nication and educational outreach. In the first phase of the restoration, sleeping compartments made of felt are suspended inside several scaffolding towers to serve as rooms of a hostel. Since the construction site is also 'inhabited', anyone who is interested can watch and learn how the ruins are gradually transformed into a living historical monument for the future. Gradually, under the watchful eye of the public, the load-bearing structure is reinforced, the roof is replaced, wood-beam floors are added, windows are installed, and the building services are connected—until the first rooms are opened as a workshop and café. At the beginning, the hostel is housed in the scaffolding, but by the end of the process, it is located in the refurbished rooms of the *Masseria*. Not only the restoration itself, but the entire renewal process constitutes a form of living preservation—one that transmits knowledge about craftsmanship and construction practices.

### New Infrastructures and Demographic Change

The completion of the Gotthard Base Tunnel in 2016 and the Ceneri Base Tunnel in 2020 provided another boost to development. Train travel time between Zurich and Bellinzona has been reduced to less than 100 minutes. The canton's public transportation system has been further expanded and optimized. Bellinzona's importance as the gateway to Ticino and as the hub of the efficient *Città Ticino* transport axis has been strengthened by these transportation projects. For decades, economic development in the Sopra- and Sottoceneri regions has been concentrated along the dominant Bellinzona-Lugano transport axis. Between 2010 and 2023, the population of Bellinzona increased by 11.1 percent as a result of new high-speed connections from northern Switzerland and within the canton. In addition, 10,000 people commute to and from work in Bellinzona every day. The percentage of smaller households and the demand for apartments for one- or two-person households increased significantly during this phase.

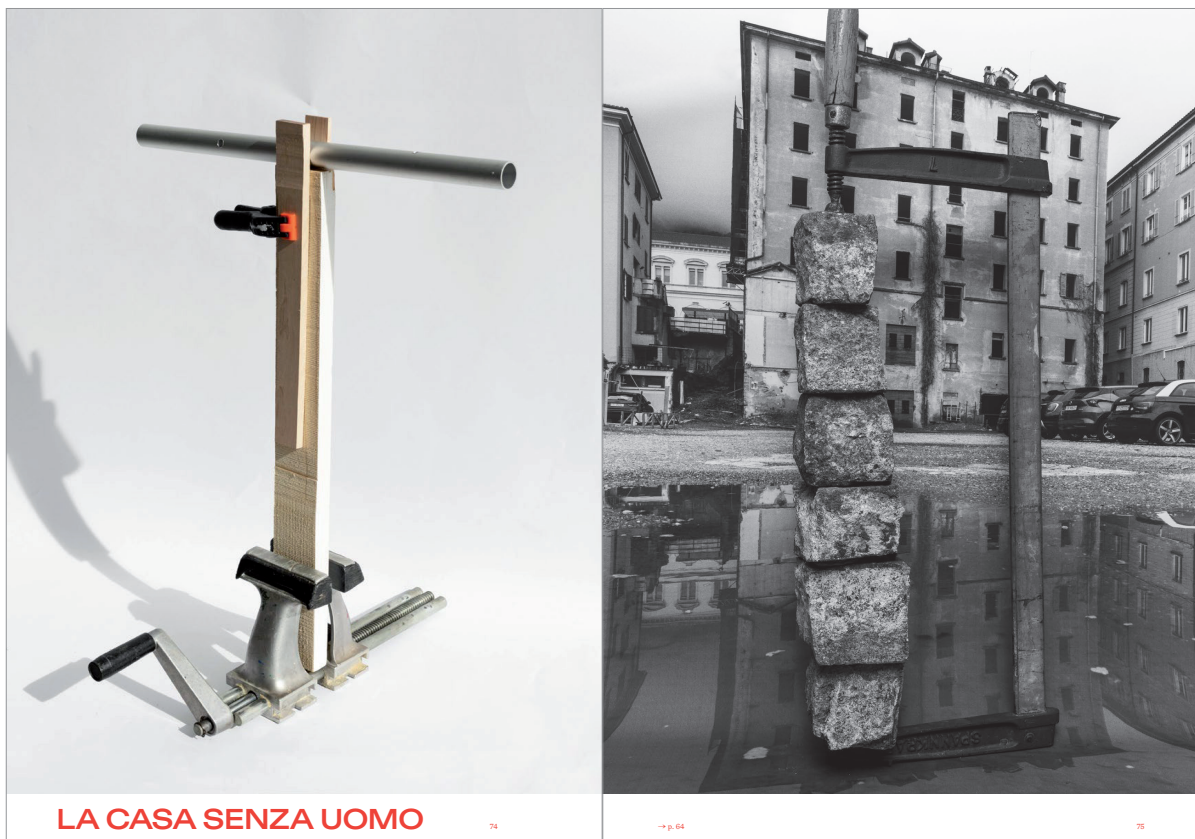
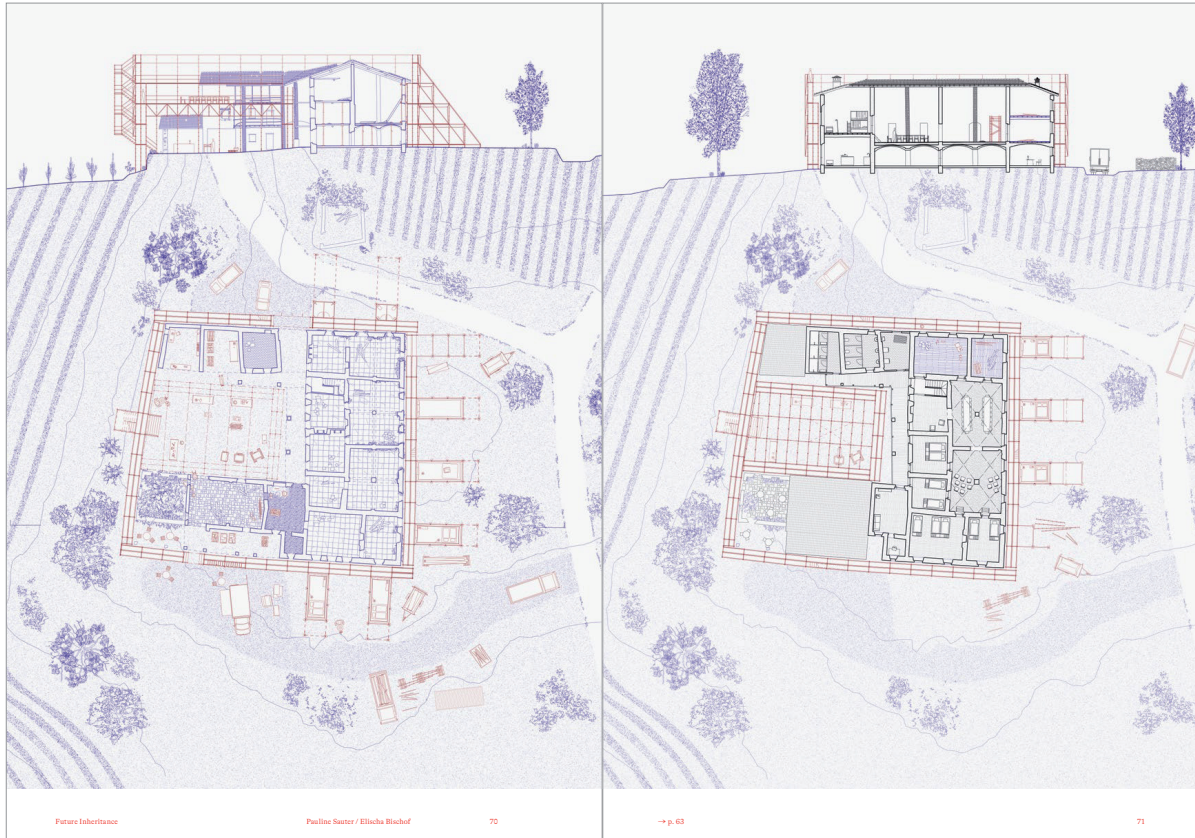
In light of these economic and demographic developments, Céline Ryffel's and Joël Liechti's project *La casa senza nome* asks what kind of housing might be in demand in a dynamic place like Bellinzona. The scaffolded historic building *Gioconda* next to the train station, whose unoccupied state and location offer great potential



Alley in the old center of Cortigios, late 1920s. Simple everyday life of farming families in the mountain village of Cortigios, with its narrow streets and traditional stone houses, in Valle Verzasca at the beginning of the 20th century

## FUTURE INHERITANCE







**Quarries in Switzerland:  
Stone in Abundance**

Until the 19th century, natural stone in Switzerland was mainly quarried locally, often by hand, using simple, laborious methods, close to where it was needed. Only a few special and valuable types of stone, such as Arzo marble, were transported over long distances. Benefiting from the economic boom and the aforementioned expansion of the railway network, which facilitated the trade in natural stone, the stone industry in Switzerland experienced a significant upswing from 1850 onward. By the First World War, there were approximately 1,000 active quarries in Switzerland. At the beginning of the 20th century, the Swiss stone industry suffered a massive slump. The decline in construction activity, competition from cheaper materials, such as concrete and steel, and the easier import of foreign stone led to the closure of numerous quarries. Today, only 77 active sites remain in Switzerland. About a third of them are located in Ticino, where large quantities of metamorphic rock, especially gneiss, are extracted.

Extraction techniques vary depending on the rock and its intended use. When large quantities of hard rock are to be extracted at one time, the traditional method of blasting is employed. The by-product is a high proportion of material of inferior quality or size that is not ordinarily used. Cutting with a diamond wire saw is more precise and therefore saves material. The process involves wrapping a diamond-studded wire around the rock and rotating it continuously to cut the rock, applying water as a coolant. The technique of drilling and splitting involves drilling holes into the rock and then inserting splitting wedges into the holes. Manual, hydraulic or pneumatic pressure is used to split the blocks of stone along a natural fracture line.

An example of the latter extraction method can be seen at Cava Boschetto in Cevio. The Maggia gneiss quarried there is characterized by its good fissility, so the slabs are often used with a raw split finish. Since the quarry is expected to close in the next ten years due to the expiration of its mining concession, intensive quarrying is currently taking place. Masses of raw stone blocks are being extracted from the mountain and stored on site for use when the quarry ceases operations.

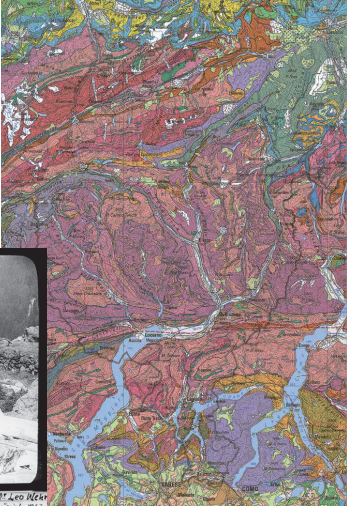
The project *La permanenza come contenitore del cambiamento* (Permanence as a container for change) by Renia Bode and Michel Credier proposes to incorporate the rapidly accumulating mass of quarried material into an architectural project, thus providing a means for its temporary storage.

The building's expression, which is reminiscent of baroque stage curtains, makes use of the raw split stone blocks and exploits the structure as a material repository. The production and construction processes are coordinated. The concept calls for the stone blocks to be connected by rods or cables to maximize their compressive strength through posttensioning. The structure of natural stone elements forms an exoskeleton that enables different uses and can be flexibly adapted to changes. This is intended to provide a sustainable solution for dealing with the remaining rock and creates the image of a stone curtain for an ever-changing material repository that guarantees adaptability not only in its interior, but also in its basic structure, or even its eventual dismantling.

The construction and physical manifestation of the building tell the story of the genesis of the stone as well as the political and economic conditions of its extraction and processing at its place of origin. The concept of stockpiling finds dual expression in the building: the large number of stone blocks that make up the facade tells of the material flow and its provenance, while the evocative detail of stacking manifests the structural load-bearing condition.

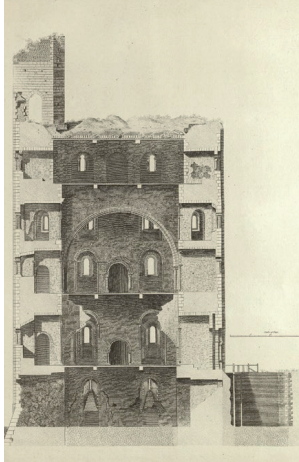
**Constructional Method:  
Tectonic Opulence**

The use of natural stone as a load-bearing construction material requires specific consideration not only of the material flow, but also the stone's material properties. Its formation and the associated stratification in the mountain opens up a specific range of possibilities for its use in the building: It determines the shapes and sizes that can be quarried, the possibilities for joining (friction, insertion, stacking, wedging) and the bedding plane orientation of the various stones and rock types. The tectonics of the mountain are directly translated into the structure of the building: The mountain is the basis for the size and workability of the rough blocks; their original position in the mountain determines their compressive strength in three-dimensional space.




**LA PERMANENZA COME CONTENITORE DEL CAMBIAMENTO**

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**Section of Heddingham Castle from East to West, Essex, 1796.** The massive stone walls of Heddingham Castle provide a resilient framework for changing functions and installations

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**LANGSAMER BAUSTELLE**

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