

CONSErvation of 20th century concrete

Cultural **Heritage** in urban changing environments

→ EDITORIAL

Dear reader,

I am pleased to introduce the 1st newsletter of the [CONSECH20](http://www.consech20.eu) project (CONSErvation of 20th century concrete Cultural Heritage in urban changing environments), which I hope will find you in good health.

CONSECH20 is a research project funded by the Joint Programming Initiative on Cultural Heritage under the Heritage in Changing Environments programme.

The project aims at developing effective approaches for conservation and protection of 20th century heritage concrete buildings against the ever-changing urban impacts, taking into account both technical and social aspects. The 20th century concrete heritage is a major challenge for conservation both because of its remarkable architectural variety and experimental character in use of materials and technologies and due to the lack of recognition of its cultural and historical value by the wide public. These aspects, together with the fast-changing urban environment, are leading causes of its deterioration and, sometimes, demolition.

CONSECH20 focuses on constructions built with historic concrete (mostly until 1960s) with social interest in the sense of bringing people together (e.g. for recreation, inhabiting, working) to strengthen the link between society and 20th century architectural heritage.

CONSECH20 aims at (i) increasing the potential of 20th century early concrete cultural heritage as a promotion vector for social integration and cultural tourism, (ii) contributing to the establishment and development of the notion of Heritage Science, a relatively new and emerging field of science that aspires to bridge the gap between

humanities and applied sciences, (iii) outline new approaches to participatory monitoring and conservation/ restoration for future use of modern architectural heritage by stakeholders, and (iv) outline new approaches for citizen engagement in the protection of modern architectural heritage. The project is using representative case studies of early concrete buildings in four of the participating countries (Cyprus, Czech Republic, Italy, and The Netherlands).

In every issue, you will find the project latest progress and events. In this issue, particular relevance is given to the case studies that are currently being analysed.

I hope you enjoy it.

Cristiana Lara Nunes, Project coordinator

CASE STUDIES ←

A total of 48 case studies have been selected in Cyprus, Czech Republic, Italy, and The Netherlands. The original selection was based on representative architectural styles, materials, construction systems, decorative techniques, aesthetic quality, and damage mechanisms. Public, municipal, and state-owned buildings of architectural significance, with divergent social values, were primarily addressed. The different categories of buildings defined for this project were:

1. Buildings that have undergone conservation/reuse interventions in the past (lessons from the past), and
2. Buildings in need of intervention to be further developed and reused.

From the list of selected case studies, only 19 % were built before 1918, 33 % are abandoned, and ca. 80 % of the buildings, originally used for industry or commerce, have lost their original function and were re-adapted to offices and recreation/cultural activities, or abandoned.

At least two buildings from the original list of case studies in each country (matching the two categories mentioned) have been selected for in-depth analysis about their state of conservation and for monitoring during the project to aid in the formulation of intervention proposals. The following case studies concerning buildings in need of intervention were selected in each country. →

MUNICIPAL MARKET NICOSIA WITHIN THE WALLS (CYPRUS)

The Nicosia Old Municipal Market is a modernist construction built by the Municipality in an attempt to revive the city within the walls, which was in a recession following the bi-communal clashes in 1963. It was designed by the well-known architect Stavros Economou in 1963, in collaboration with some other of the period's most important local architects, which included the Zembyla Brothers, D.Kythreoti and C. Vafeadi, and started its operation in 1967. At the time of its design and construction, it aimed to be a modern retail market. It hosted 70 branches for vegetable sellers, 21 butcheries, and 3 fish sellers, as well as a few grocers. Although in 2002 the Market still hosted 98 resident sellers, the continuous expansion of the city outside the walls gradually led to its abandonment, with only 3 sellers remaining by 2017, when it was eventually closed.



The building has been included in the index of the 100 (most) important buildings, sites and neighbourhoods from Cyprus by the National Register of DOCOMOMO and is currently listed. The main construction system comprises of a two-floor, 7 metre high, reinforced concrete frame structure, with four independent sections separated by construction joints. The north side is attached to a two-floor masonry structure. The west section has shear walls concentrated at one side, creating torsional effects. The southeast side has a basement. Roof cantilevers are entirely exposed, with clear signs of deterioration and reinforcement corrosion. Some of the columns with in-built rain downpipes are also severely deteriorated.

Antroula Georgiou and Ioannis Ioannou



DIVING TOWER OF THE FORMER SWIMMING STADIUM UNDER THE BARRANDOV TERRACES IN PRAGUE (CZECH REPUBLIC)



Source: Stavba review, 1931



The Barrandov swimming stadium is an iconic sports modernist construction in the Czech Republic. It was designed by architect Václav Kolář and built in 1930 on the left bank of the Vltava River in Prague, at the place of a former limestone quarry. A massif rock cliff surrounds the area up to 45 metres high. It was part of the development of the area encompassing residencies, film studios, and a restaurant. The complex was built on a plot given by the Havel Family (building entrepreneurs and pioneers of the film industry in former Czechoslovakia) who still own the nowadays abandoned structures. The dominant feature of the complex is a concrete functionalist diving tower with 2 floors resting on a cast-in-place column with a spiral staircase. The elegant diving tower soon became an emblem of water sports constructions. The swimming complex was in use since its inauguration in 1931 until 1955. Over time, the metal railing of the staircase disappeared, and the lowest steps were removed for safety reasons. In 1993, the area was declared a cultural monument together with the Barrandov Terraces, which are now being repaired after decades of neglect. The former swimming area is largely destroyed, and the ruin of the diving tower is surrounded by overgrown vegetation. The public can access it and, during summer, it has been used as a place for cultural events.

Cristiana L. Nunes and Ondřej Dušek

→ THE FRUIT AND VEGETABLE MARKET IN GENOA, CORSO SARDEGNA (ITALY)

The Fruit and Vegetables Market is a public property in the urban centre of the city of Genoa. It was designed by the Municipal Technical Office together with the engineers Mario Braccialini, Tommaso Badano, Giulio Zappa. It was built between 1925 and 1930, in a period characterized by experimental testing about the use of reinforced concrete based on the intuition as well as on patents developed by specialized companies. Thus, the various buildings composing the Market complex were designed and built according to at least four different Italian standards dating from 1907 to 1930. The structures have foundation plinths in reinforced concrete blocks connected by girders, perimeter walls built with stone blocks and lime mortar, internal dividing walls in concrete blocks, flat roofing made of slabs composed of reinforced perforated tile hollow flat blocks. The centrally arranged pavilions have reinforced concrete pillars and roofs. In the 1960s, the market underwent several interventions that provided the addition of a steel and fibre cement roofing covering the central open spaces of the complex. The Market closed in 2009 and was transferred to another part of the city. The complex is still abandoned, but a recent project of restoration transformation and re-use is now ready to be realized. The former Market is only partially protected, according to Italian legislation, because the declaration of interest issued in 2010 limited its protection to the external walls and less than half its buildings.

Stefano Francesco Musso and Federica Pompejano



Source: Ridella M., 2018

“HENNEBIQUE” ← FORMER SILOS S. LIMBANIA IN THE HISTORIC HARBOR OF GENOA (ITALY)



Source: Pedrazzi L., 2018

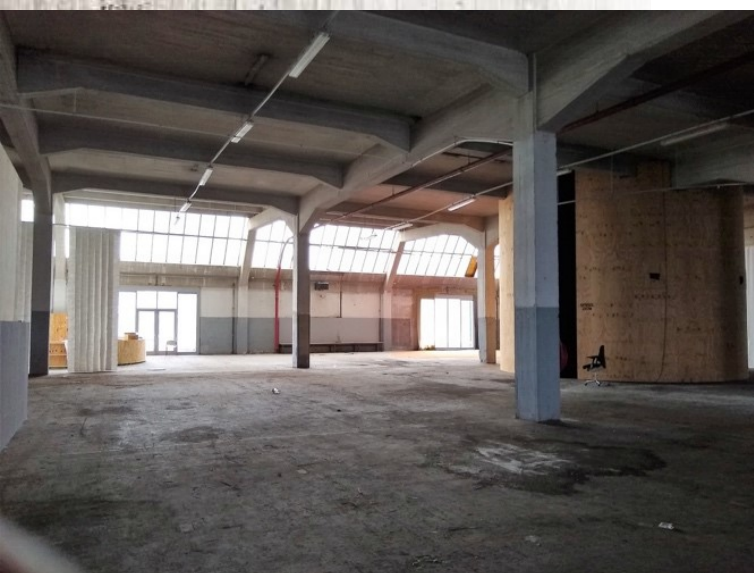
The former Silos S. Limbania – “Hennebique” were designed by engineers Antonio Carissimo, Giovanni Crotti and Giovanni Battista De Cristoforis, and built in the early 20th century in the port area (1899-1906) by the Building Companies G.A. Porcheddu and Ferrobeton. The “Hennebique” silos are among the most significant 20th century architectural complexes built with reinforced concrete conglomerate and symbolize this new building technique and material development. It is a mixed public property (the building is owned by the Western Ligurian Sea Port Authority while the territorial area is a State property). The construction was considered as a real industrial machine, inside which there was a mechanical system organized for the unloading, storage and sorting of the grain. The history of the complex knew different construction phases. The first part, comprising the central body and the east wing, was built between 1901-1903, according to the Hennebique patent, then the west wing was added, in 1906, following Monier's patent and modified several times in the following decades. In the 1960s, the grain trade activity was over, and some companies used parts of the Silos until the last 20 years of the 20th century, when it was abandoned, which explains its present bad state of conservation. Various redevelopment projects attempts of the building followed without leading to any actual result due to the difficulties and the high costs of modifying the construction because of its structural characteristics. It is listed and protected by the State, since April 2010. A new international call for interest for developing a design through a project financing procedure has been recently launched and successfully closed, but the results are not known yet.

Stefano Francesco Musso and Federica Pompejano

→ THE FENIX II IN ROTTERDAM (THE NETHERLANDS)



Designed by the architect Mr C.N. van Goor and built in 1921-1922, the Fenix Building, formerly known as the San Francisco Warehouse, is one of the largest and most characteristic warehouses of the old harbour of Rotterdam. Until the 1940s, it was the shipping terminal of the Holland America line where goods were loaded and unloaded, and people embarked and received after the journey. During the WWII, the building was bombed and partially destroyed. In the early 1950s, a fire destroyed the middle part of the building. Shortly afterwards, the building was reconstructed and divided into two parts: the Fenix I and the Fenix II. In the 1980s, the port activities relocated and the warehouse lost its original function and was temporary used for different purposes.



The original building was characterized by its diaphanous interior space, practicable loading decks in the facades, and a technically-advanced crane system installed in the roof, to load/unload the goods from the ships to the trains

and lorries and vice versa.

The current owner, the Droom en Daad Foundation, is about to start a restoration and adaptive reuse project, to transform the Fenix II into a cultural and recreational building. Most of the existing structure will be retained and restored.

In the framework of CONSECH20, the state of conservation of the building will be investigated. Visual inspections, laboratory, and in-situ testing will be carried out to elucidate the damage mechanism(s) affecting the historic concrete. Based on the findings, a contribution will be given to the development of a conservation plan.

Gabriel Pardo Redondo, Barbara Lubelli, and Silvia Naldini

EMPOWERING INSPECTORS ←

One of the aims of the CONSECH20 project is to empower inspectors performing visual monitoring and mapping of ongoing deterioration mechanisms in concrete buildings. In the Netherlands, interactive workshops will be given to the inspectors of the Monumentenwacht organization, conveying information and making use of the MDCS system.

The MDCS Monument Diagnosis and Conservation System is a web-based decision support tool for survey and diagnosis of damage of monumental buildings, that is being used within the project CONSECH20. Please, use the following link to explore this tool:

<https://mdcs.monumentenkenis.nl/>

This tool has been developed by TNO - the Netherlands Organisation for Applied Scientific Research, TU Delft - University of Technology Delft, and RCE – the Cultural Heritage Agency.

Silvia Naldini, Barbara Lubelli, and Gabriel Pardo Redondo

MDCS / Monument Diagnosis and Conservation System
The online damage-expert for
monumental buildings

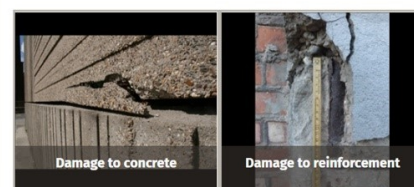
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Brick
Mortar (pointing, bedding, repair)
Natural stone
Plaster (or render)
Concrete
• Damage to concrete
• Damage to reinforcement
Structural damage

Damage Atlas

Search for keyword, material or damage category

Concrete



Source: MDCS - <https://mdcs.monumentenkenis.nl/>

→ WTA SYMPOSIUM IN DELFT ANNOUNCEMENT – 26 JUNE 2020

Concrete heritage buildings from the 20th century are at risk, due to the absence of recognition of the historic values of these buildings as well as to the lack of knowledge of the specific characteristics of historic concrete structures. Frequently, solutions developed for repair of contemporary structures are applied to historic concrete buildings, resulting in interventions that are neither compatible nor durable.

This Colloquium aims at providing building owners, employees from planning and engineering offices, construction companies, concrete experts, architects, and representatives of authorities, with the latest developments in the field of conservation of concrete historic buildings, as resulting from the practice and international research projects.

On behalf of the organizing team, the members of WTA - International (TC5 Concrete) and of the JPI-CH CONSECH20 project, we cordially invite you to the 7th Colloquium WTA - Strategies for the Conservation of Historic Concrete Buildings and Structures.

The date of the symposium is most probably going to change, as consequences of the measures taken against the coronavirus. Please consult the website for an update:

<https://www.wta-international.org/de/veranstaltungen/7th-wta-colloquium-maintenance-of-concrete-buildings/>

We are looking forward to meeting you in Delft!

Barbara Lubelli, Silvia Naldini, and Gabriel Pardo Redondo

CONSORCIUM PARTNERS ←



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The partners' contacts can be found in the following link:
<https://consech20.eu/contacts/>



Restaurant of the winter stadium in Štvanice island, Prague (Czech Republic)