

Thematic sessions

Historic pre-cast concrete

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Historic pre-cast concrete is omnipresent in the building stock dating from the last 150 years, although the historic variations are seldom recognised. Such elements are either disguised as natural stone or used constructively for floors or trusses and therefore out of view. The sheer variety of elements, patents, and national variations challenge construction historians, engineers and restoration architects to identify them when investigating historical buildings and to understand the variety in design, material composition and underlying structural concept.

In this proposal, historic pre-cast concrete is understood as concrete (plain or reinforced) which is not cast in-situ, but in factories or on-site in temporary factories. Its use dates back to the middle of the 19th century as a substitute for brick and natural stone (synonyms: cast stone, artificial stone). During the last decade of the 19th century, pre-cast (reinforced) concrete elements conquered the market, especially for floor and decorative elements, but also for niche markets such as pre-cast structural elements (e.g., trusses).

The architectural potentials of pre-cast concrete were increasingly explored as well. Pre-casting offered potentials that in-situ casting of concrete could not offer due to the then state of the art of workmanship. As the higher demands towards surface finishes and wishes to alter concrete's grey colour were difficult to achieve in-situ, pre-casting was a welcomed alternative. This production method allowed a better control of the technical and aesthetical qualities. Other boundary conditions favouring pre-casting during the 1920s were the shortages of housing (quicker construction time), materials and skilled workers, and again in the Post-war period after the Second World War.

Parallel with the improvement of quality, standardisation and infrastructure, and the increasing social acceptance of concrete, the use of pre-cast concrete became common in the 1960s and 1970s. In this period, many international architectural icons were built with pre-cast concrete. However, the underlying rationale for material choice, including architectural expression and concept, mix-design of the concrete, choice of supplier and influence of the stakeholders is seldom addressed when looking at the architectural / construction history of this period, and listing and conserving of precast concrete buildings.

For this session, papers on following topics could be considered: technical development of pre-cast concrete, from cast stone to architectural icons; cross-cultural influences in production and application; production methods and patents; pre-cast concrete companies; mass-produced and custom-made pre-cast elements; building systems made with pre-cast concrete; case studies.