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Large Structures and Infrastructures for Environmentally Constrained and Urbanised Areas - Abstract Submission

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Title: design process and construction management for buried parking facilities in the city of Milan

In heavily urbanized areas, the only possibility to satisfy the high demand of vehicle parking is the rational use of subsoil for buried parking lots, both for public and private use; accordingly the impact of car parking on the urban landscape can be minimized, and the above grade environment can return to a human scale harmonized with the surrounding urban context.

In this paper, the last ten years' experience of the authors is reported, in the framework of the Urban Parking Plan (PUP) of the Municipality of Milan, in conceiving, designing and building about twenty buried parking facilities.

The design development path is highlighted, which starts from the concept design of the facility and ends up only at completion of the works.

The process of fitting the underground facility in the urban environment is described, not simply as a document-preparation process than can be carried out on an office desk, but as a much more complex one, needing for a predefined sequence of in situ verifications, aiming to the harmonization between the facility and the environment and to minimize the impact to the surrounding during the works.

Designing a buried parking facility in urban environment calls for several peculiar disciplines, needing for a strong coordination. Of primary importance is a study of local traffic, from which the geometry is determined of elements connecting the facility with local street system, on order to facilitate both car and pedestrian access.

As a further issue addressed in the paper, the design has to deal with the net of underground and surface services, typically dens in an urban area, providing its thorough definition and the resolution of the interferences with the new structures.

In a special way for Milan, a city with an ancient origin, the deep knowledge of the site history, the preliminary assessment of the archeological risk, and the correct interpretation of the above grade functions and local suburb needs are also described as fundamental issues for a successful design and effective construction of the facility.

Finally, structural and geotechnical requirements are considered, needed to assess safety and serviceability of the surrounding buildings; practical knowledge of construction methods, as well as a thorough geotechnical review, are shown to be fundamental to reach the correct design decisions from safety, environmental and economical standpoints.