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USE OF UNDERGROUND SPACE IN URBAN DEVELOPMENT

Currently, the issue of the simultaneous use of surface and underground spaces (areas) of "land" by different subjects for varying needs is relevant. It is especially urgent for fast growing and developing cities. The modern approach to a sustainable land use resulted in the development of underground space.

Taking into account the world practice of using underground space we can conclude that it is effective not only for placing objects of transport and engineering infrastructure, but also for the construction of buildings for public use. The distinction of architectural and planning solutions of these structures allows creating of new functional volumes in the underground space at the optimum placement of underground facilities. The composition of underground facilities mainly include shops, museums, theaters, concert halls and gyms, restaurants, pools, etc.

The largest underground shopping mall called Path is located in Toronto. Its length is 26 km. Among the underground systems of public transport in urban areas of our country prevails subway. Currently subways are operated and built in four cities of Ukraine: Kyiv, Kharkiv, Dnipro, Donetsk. There is also a speed tram operated in Kryvyi Rih.

The lack of natural light, natural sound and the psychological state of a person under the ground require a special solution of interior space with special lighting and air conditioning systems, green areas and small architectural forms - fountains, benches, etc.

With extensive use of underground space architectural and spatial view of the city and historical buildings are preserved, it is also possible to construct utilities in restricted urban areas; the preservation and restoration of green areas, unique objects of landscape architec-

ture and attractions; the development of urban engineering systems, improvement of transport services, increase of traffic safety and environmental situation of the city can be provided.

Further development of cities in Ukraine can not be predicted without developing a program for underground space integrated development, the implementation of which requires thorough study of European and Russian practice and research conduction. Principles of city's underground space development considering the issues of historic center environment of the largest cities of Ukraine should be developed.

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CALCULATION OF ROUND FOUNDATION SLABS WITH NON-UNIFORM BASE DEFORMATION

In engineering practice, the calculation problem of structural elements lying on a continuous elastic foundation is frequently encountered. Tower-type round foundations of buildings and structures can be assigned to these structures. These tasks are much more compli-