

УДК 614.841.45

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МЕТОДИ МОДЕЛЮВАННЯ РОЗМІЩЕННЯ КАБЕЛІВ В ТУНЕЛЯХ ТА КОЛЕКТОРАХ КРУГЛОГО ПЕРЕТИНУ ЗА ДОПОМОГОЮ SKETCHUP

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MODELING METHODS OF CABLE PLACEMENT IN TUNNELS AND ROUND CROSS-SECTION COLLECTORS USING THE SKETCHUP

In cities with a large number of laid cable lines and the presence of various underground communications, it is recommended to install cables in special underground cable structures. The configuration of the blocks is determined by specific conditions, the number of channels, and other factors. A tunnel allows for cable laying, repairs, and inspections along its entire length with free passage. It is constructed using prefabricated reinforced concrete elements or, less commonly, monolithic reinforced concrete. A layer of soil of at least 0.5 m is placed above the tunnel. Depending on the number of cables, the tunnel can be single-sided with a width of 1500 mm or double-sided with a width of 1800 mm [1]. Replicating the geometric configuration of a cable tunnel can be achieved using the SketchUp Free software (fig.1), which does not require significant effort in 3D modeling [2].

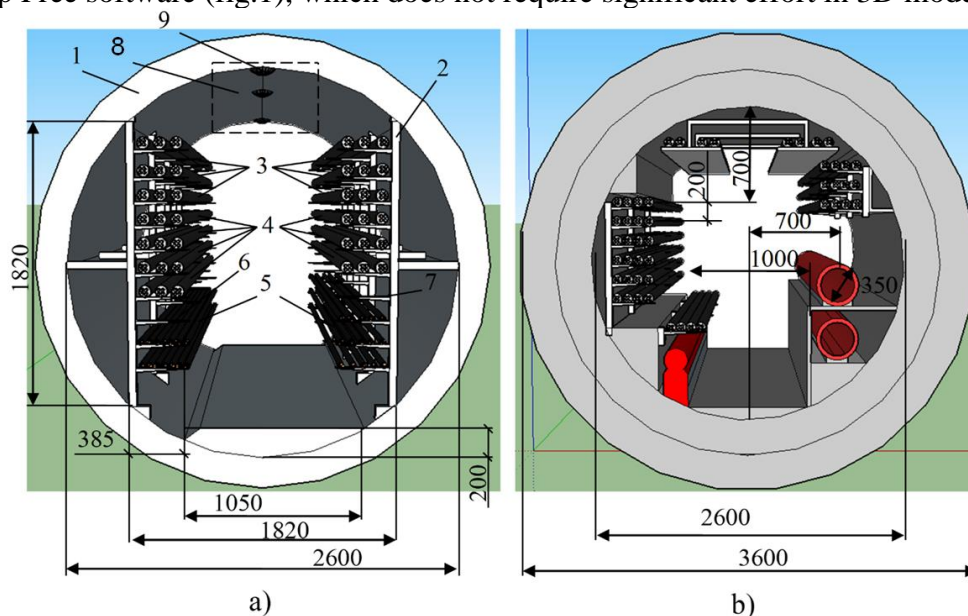


Figure. 1 - Placement of cables in tunnels and round cross-section collectors:
a - tunnel, b - collector; 1 - tunnel block, 2 - cable structure block; 3 - cables above 1 kV,
4 - cables up to 1 kV, 5 - control cables, 6 - joint sleeve, 7 - free shelf for laying
connecting sleeves, 8 - luminaire, 9 - zone of fire detectors and mechanized dust cleaning
and firefighting pipelines.

Visualization and reproduction of various geometric configurations using the SketchUp Free software enable the seamless analysis of the geometry of different building structures, facilities, and buildings [3]. SketchUp Free is freely available software accessible to all.

References

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