

Energy tunnels: an opportunity for the development of urban areas

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Abstract

A real-scale energy tunnel prototype was recently implemented along the Turin Metro Line 1 South Extension, at present under construction. The aim is to assess the thermal performance of a new concept of energy segment (Enertun) for its future implementation along the Metro Line 2, at present under design. A comprehensive view of the different steps needed for the installation of the prototype will be given together with the description of its main components. Illustrative tests performed at the site will be described and discussed by showing the evidences in terms of energy efficiency and induced thermal strains and stresses in the lining. Implications for the application to the 15 km-long tunnels of the new Line 2 will also be given.