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Budapest University of Technology and Economics

PRESS RELEASE

HUNGARY'S BIGGEST RESEARCH WIND TUNNEL TO BE BUILT AT THE BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS (BME)

Research engineers of BME are working on the „Establishment of an Atmospheric Flow Laboratory” project which aims to build a new wind tunnel laboratory, unique in Hungary, for carrying out measurements in the field of building and environmental aerodynamics.

The Faculty of Architecture, the Faculty of Civil Engineering, and the Faculty of Mechanical Engineering of the Budapest University of Technology and Economics (BME) received 411,24 million HUF (approx. 1.3 M EUR) funding in the Széchenyi 2020, Competitive Central Hungary Operative Programme, as part of the call VEKOP 2.3.3-15 “Research infrastructure development – internationalization, networking”. 75 % of the sum is provided by the European Union and 25 % by the Hungarian Government.

Atmospheric flow has an effect on the land surface as well as on the human built structures, so accordingly the new Atmospheric Flow Laboratory (short in Hungarian: AÁL) opens up research possibilities for architects, civil engineers, mechanical engineers and meteorologists at the same time. Therefore the project was put together and submitted by the Faculties of Architecture, Civil Engineering and Mechanical Engineering, with the cooperation of six departments all together. The faculties will also collaborate in the research activities to be carried out in the new lab.

The laboratory, designed to be bigger than 300 m², the new wind tunnel, the model machining tools and advanced flow measurement devices ensure a world-class infrastructure for the architectural and civil engineering researches related to atmospheric flows in the next decades and at the same time assist Hungarian researchers in joining international research networks. The new wind tunnel – which is going to be Hungary's biggest research wind tunnel with a length of 25 m and approx. 7 m² test section cross section – enables the investigation of wind-sensitive structures, tall buildings and bridges. Knowing the test results helps decrease the construction costs or in case of the reconstruction of historical buildings with unique shape it helps the planning of risk reduction measures. The new wind tunnel is suitable for the modelling of atmospheric pollutant dispersion and ventilation of urban areas. The effects of the wind can be precisely determined with realistic terrain, surface roughness and thermal conditions to improve the water safety of our lakes. The wind tunnel is an important tool in making the rapidly evolving numerical flow simulation (CFD) software tools more accurate and reliable.

Construction of the new laboratory hall in the AE building of BME is expected to take place in 2019, construction and installation of the wind tunnel in 2020. However, research of the participating faculties will already be helped before the completion of the laboratory by the advanced measurement devices and flow simulation software that are to be purchased.

Besides assisting domestic and international cooperation, the protection of research jobs, and the creation of new ones, the Atmospheric Flow Laboratory aims to become a reliable partner of the Hungarian construction and environmental protection sector, giving it a background infrastructure and by that increasing the international competitiveness of them.

For details of the project go to www.bmeafl.com.

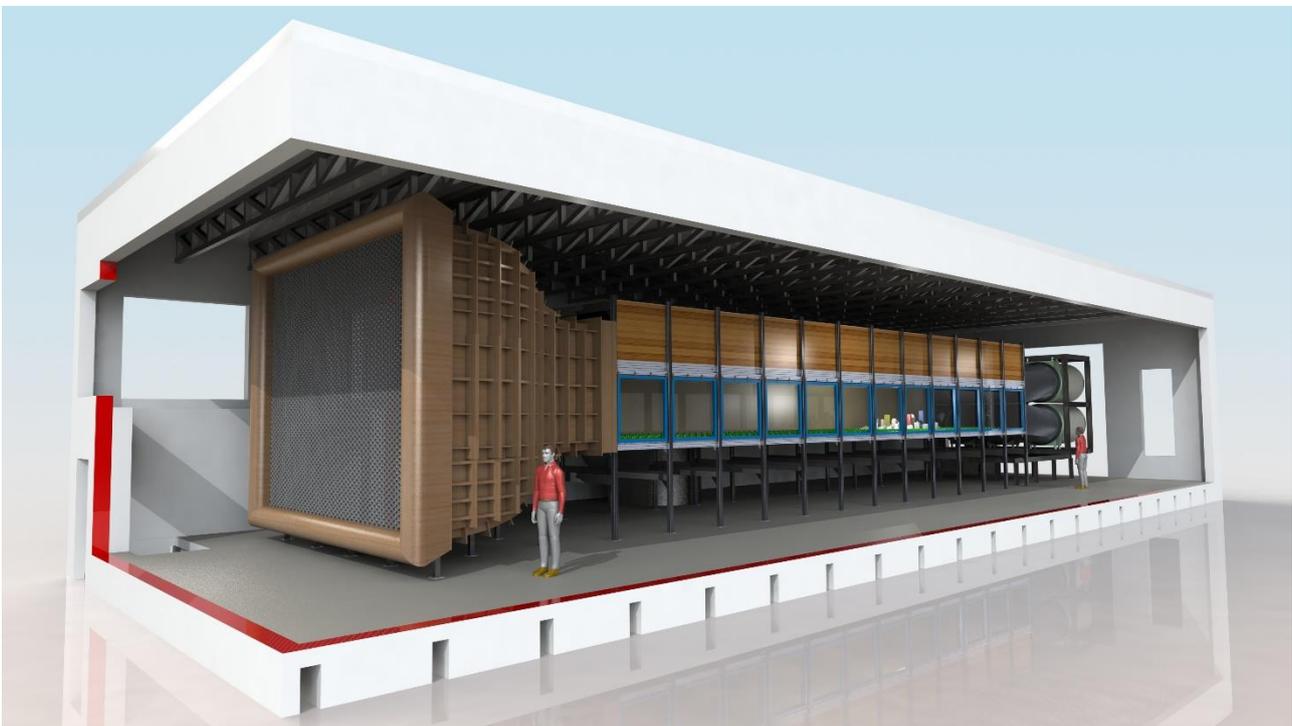
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Press photographs



Design of the new wind tunnel with the inlet mouth and contraction at the front, the test section in the middle (with the model of an urban area in it) and the fans of the wind tunnel in the back creating the air flow.



The wind tunnel model of a tensioned fabric structure and its surroundings (Baltimore, USA) in the existing wind tunnel of the Theodore von Kármán Wind Tunnel Laboratory of the Department of Fluid Mechanics at the Faculty of Mechanical Engineering of BME.