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ILC Ltd. entrusted the **Department of Construction Materials and Technologies of BME** to perform fire, heat and moisture performance laboratory testing of the polystyrene concrete produced by the company.

We performed the following subtasks:

- heat loading of the specimens in furnace and measurement of compressive strength,
- measurement of thermal conductivity,
- determination of hygroscopic sorption isotherm.

The performed laboratory tests were handed over to the client in a 39-page report entitled "Fire, heat and moisture performance laboratory testing of polystyrene concrete" (in Hungarian) dated 9.12.2020. Main conclusions of the tests are summarized in the following:

Based on the heat loading of the specimens in the furnace and on the measurement of compressive strength, we can state that the polystyrene concrete of the tested composition performed better than conventional concretes; therefore, **it can be used in structural design according to the MSZ EN 1992-1-2.**

Based on the thermal conductivity measurement of the specimens, in the building physics and energy performance calculations of buildings and building constructions, **the declared thermal conductivity of 0,7 W/mK must be applied for the polystyrene concrete of the tested composition.**

Based on the examination of the specimens, it can be stated that the hygroscopic sorption properties of the polystyrene concrete of the tested composition are more favourable than that of conventional concretes.

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