

ENGLISH SUMMARY

EFFECT OF DENSITY ON THE SOUNDING RESISTANCE IN COHESIONLESS SOILS

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This study has been dealing with the test soundings carried out by the Geotechnical Laboratory of the State Institute for Technical Research. These test soundings were effected in the laboratory in a barrel shown in fig. 1. The investigations were carried out with the Swedish weight sound, the light ram sound and the Dutch static penetrometer (fig. 2) and two soils (233 and 237) were used in the study, the gradations of which are seen in fig. 3. The following conclusions can be drawn from the obtained results:

- The compaction of the investigated soil into the test barrel in such a way as to render the density equal both in the bottom and the surface layers proved to be extremely difficult. The scatter in the test results (fig. 6—11) is due to the heterogeneity of the soil compacted in the barrel (in the direction of depth) and moreover to the fact that it was impossible to take the friction between the soil layer and the drilling rod into consideration.
- Porosity has been used as a measure of the density of soils (figures 6—9). An endeavour has been made to explain the dependence of the sounding resistance on the density by means of the so-called resistance parameter (W/p_o). Figures 6—8 show that this parameter increases with a decrease in the porosity and furthermore that the relation also depends on the gradation of the soil and probably also on the grain shape and other geotechnical properties. In spite of the scatter apparent in the figures the conclusion can be drawn that the parameter mentioned above obviously is the most important factor in the interpretation of the sounding resistance and besides that

the sounding resistance can be used to determine the magnitude of the density in cohesionless soils.

- Figures 9—11 depict the relation between the sounding resistance and the tangent modulus determined from the oedometer test. The tangent modulus was calculated by means of formula (2) so that the value (p_o) of the effective stress prevailing at the depth in question was used for the stress. The figures confirm that the tangent modulus increases as the sounding resistance increases and also that this relation plainly depends on the soil's gradation.
- The tests carried out in laboratory conditions have been preparatory. They have gone to confirm that in further investigations which already have been started by the Geotechnical Laboratory attention has to be paid expressly to the density of the soils to be investigated and also to the reliability of the methods used to measure the density.

ON STRUCTURAL CONSTANTS OF PLYWOOD

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The paper deals with plywood as a laminated plane structure. Its individual layers are supposed to be homogeneous and orthotropic plates. The glued joints make them to work together. So, it is formed a structure whose statical quantities can be calculated as a function of the number, the thickness, and the constants of elasticity of veneers. In the article the formulae of stiffness in tension, bending, shear and torsion, the Poisson's ratios, and section moduli are given. The effect of the rotation of the co-ordinate axes on the stiffness constants is examined. For practical purposes, the strength and elasticity constants of the Finnish birch plywood can be obtained from the reference [5], where the laminated model of plywood has been used.