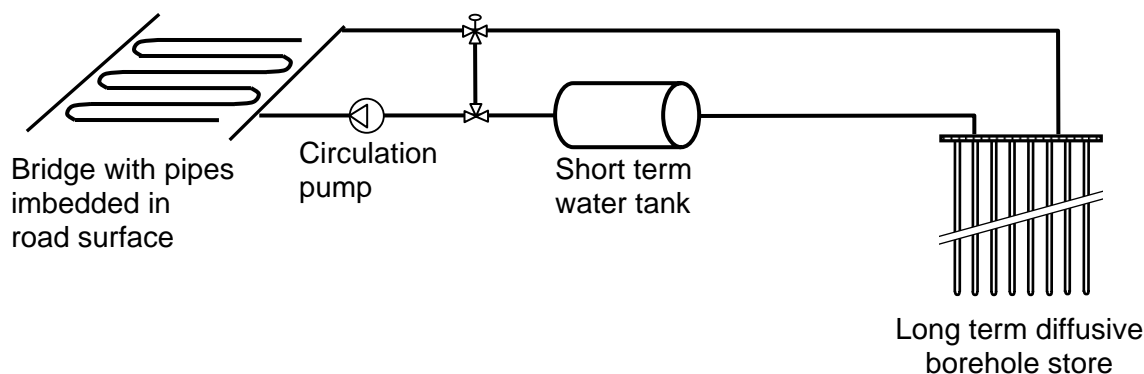


BRIDGESIM

Simulation Tool for the System Design of Bridge Heating for Ice Prevention with Solar Heat Stored in a Seasonal Ground Duct Store



BRIDGESIM is a dynamic simulation programme for the assessment of the thermal performances of a bridge heating for ice prevention with solar heat stored in a seasonal ground duct store. Solar gains are collected with the bridge during summer and stored in the ground. Heat is recovered from the ground during winter to unfreeze the bridge. Long-term effects, which can be determinant in correctly sizing such a system, can be simulated for up to 50 years. A user-friendly interface allows the user to define the parameters relative to his particular problem. BRIDGESIM requires meteorological data in input as well as the bridge structure data. The bridge input data file is generated with the demo version of the TRNBuild programme of the TRNSYS package (www.transsolar.com). The demo version, which is sufficient to generate a bridge input data file, is included in the BRIDGESIM package. The meteorological data can be produced with the METEONORM programme (www.meteonorm.com). It is thus recommended to acquire METEONORM in addition to the BRIDGESIM programme. BRIDGESIM was developed at the ISAAC of SUPSI. The development was financially supported by the Swiss Federal Office of Energy (OFEN). BRIDGESIM has been developed using the project in Serro – Därlingen in the Swiss Bern county and has been calibrated with 2 years of detailed monitoring. It is using the TRNSED feature of the TRNSYS programme. BRIDGESIM is a 32-bit programme and works with Windows XP. Ask for a free demo version by email to the author: daniel.pahud@supsi.ch. Price of the commercial version: 450 CHF in Switzerland or 300 EU outside Switzerland. BRIDGESIM can be ordered by an e-mail to the author: daniel.pahud@supsi.ch.