



Skid resistance and surface roughness testing of historic stone surfaces: advantages and limitations

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Skid resistance tests are mostly applied for testing road surfaces and almost never applied for testing stones at cultural heritage sites. The present study focuses on the possibilities of using these techniques in assessing the surface roughness of paving stones at a historic site. Two different methods were used in a comparative way to evaluate the surface properties of various types of stones ranging from travertine to non-porous limestone and granite. The applied techniques included the use of SRT pendulum (Skid Resistance Tester) providing USRV values and a mobile equipment to analyze the surface properties (Floor Slide Control) by surface profiling and providing angle of friction. The main aims of tests were to understand the wearing of stone materials due to intense pedestrian use and to detect surface changes/surface roughness and slip resistance within few year periods. The measured loss in surface slip resistance (i.e. USRV values) was in the order of 20% for granites, while most limestones lost at least 40% in terms of USRV values. An opposite trend was detected for a porous travertine type, where the surface became rougher after years of use. The limitations of these techniques are also addressed in the paper. The tests have shown that the introduction of the use of these equipments in heritage studies provide useful information on the longevity of historic stone pavements that are open for public use.