

Very Thin Asphalt Concrete as Wearing Course on Main Runway at Copenhagen Airport

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Abstract

In 1998 the first part, about 30.000 m², of the main runway, 04L-22R, at Copenhagen Airport was resurfaced using a very thin asphalt layer as new wearing course. The works included the milling off of the top 20 mm of the old wearing course and the construction of a new 20 mm thin wearing course of the type where the asphalt paving machine is spreading a thick layer of emulsion in front of the open graded asphalt concrete being paved. The rest of the runway has successively been resurfaced in the period 1999 to 2002 using the same method.

The tender documents were based on the new type of specifications based primarily on functional requirements. The requirements included end-performance requirements in an eight-year warranty period.

During construction of the new wearing course the work was extensively controlled by the client in order to be able to evaluate the actual quality of the new pavement and in order to be able to predict the development of the performance of the pavement using the first test results as a platform for the comparison with future measurements. For these purposes traditional laboratory test methods as well as new test methods like thin section microscopy were used.

The results of this Quality Control has put Copenhagen Airport A/S into a position where it is possible to assess whether the maintenance methods and the maintenance efforts of the contractor are satisfactory or not in relation to the functional requirements of the runway.

The use of this type of wearing course has resulted in expected and also unexpected advantages. The expected advantages are good friction, good roughness, no surface water and no FOD. One of the unexpected advantages is that compared to conventional pavements for runways almost no rubber from the wheels of the aircraft fastens to the pavement surface thus almost no work on derubberisation needs to be carried out. Another unexpected advantage is that much less de-icer material is needed for the de-icing of the pavement compared to traditional runway pavements.

The wearing course is planned to be renewed in 2008 and will at that time have had a life of 10 years. During the ten years the pavement has only had one sealing in order to keep the wearing up to the required standard. The wearing course has until now performed excellent and all the benefits of this type of wearing course is expected to last all ten years.

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