

Day Two - Track One

Thursday, March 22nd, 2018

11:00 a.m. – 11:30 a.m.

How Should You Be Designing Your Permeable Pavements? – New ASCE Standard

Presenter: Lori Schaus, Applied Research Associates, Inc.

Biography



Lori Schaus is a senior pavement engineer with Applied Research Associates, Inc. in Toronto. Her experience includes design, field and laboratory evaluation of permeable pavement systems. She recently completed permeable pavement designs for the Cities of Calgary, Alberta and Berkeley, California as co-authoring a research report on the feasibility of design permeable pavements for highway shoulders. She completed her Master of Applied Science degree from the University of Waterloo.

Abstract

This presentation outlines technical advances in permeable interlocking concrete pavement (PICP) design introduced in the newly published American Society of Civil Engineers (ASCE) standard. PICPs include high strength, impermeable concrete units for the surface that meet ASTM or CSA standards. When installed, the joints between units are filled with permeable aggregate to allow for surface water infiltration. The units are placed over an open-graded aggregate bedding course, aggregate base and subbase for water storage and structural support. The design of permeable pavements differ from other traditional pavement systems in that both structural and hydrologic considerations impact the system depth, one of three different infiltration approaches can be used based on site and subgrade conditions, and unique elements are included over sloped subgrades. New to the ASCE standard is structural design for supporting traffic through the use of a mechanistic-empirical model that was developed through full-scale accelerated testing research completed at the University of California Davis Pavement Research Center. The impact of pavement loading is modelled using the pavement layer and subgrade stiffness under dry and wet conditions to determine when a user specified rut depth results from traffic loading.

Learning Objectives

1. Recognize factors that impact the suitability of a site for permeable pavement;
2. Understand design and construction features important to performance; and
3. Communicate and promote sustainable pavement design and construction.