



Report on 1-day workshop on design and construction of concrete structures for liquid retaining and containment as per EC2 Part 3 and basement/underground facilities as per Eurocodes

by Ir. Chong Chee Meng

Ir. Chong Chee Meng is currently the Deputy Chairman in Civil and Structural Engineering Technical Division (CSETD).

The Civil and Structural Engineering Technical Division (CSETD) and The Institution of Structural Engineers (Malaysia Regional Group) have jointly organized a 1-day workshop on 'Design and construction of concrete structures for liquid retaining and containment as per EC2 Part 3 and basement/underground facilities as per Eurocodes'. The 1 day seminar was held on 14th July 2017 at Armada Hotel. The speaker was Mr. Rajavel Inbarajan, who has more than 25 years of quality and varied experience in conceptual design, detailed design and project management of very large structural and civil engineering projects in international and cross cultural set-up. Mr. Rajavel has been appointed by IstructE as an examiner for the Chartered Membership Examination in 2008 and continues this prestigious role ever since.

This seminar was chaired by Ir. Chong Chee Meng, the Deputy Chairman of (CSETD) and was attended by 73 participants. The 73 participants included engineers from engineering consultants, contracting firms, government agencies and local authorities as well as faculty members from local institutions of higher learning.

The seminar was divided into 4 sections. In section 1, Mr. Rajavel commenced his talk by briefly explained the history of the development of liquid retaining structures code in the UK, then continues with the comparison between BS8007-1987 and EN1992-3 2006. Mr. Rajavel also clarified that EC2 Part 3 does not cover structures for the storage of materials at very low or very high temperatures, structures for the storage of hazardous materials, pressurised vessels, floating structures, large dam and gas tightness. After that, he explained in details on the ultimate limit state design and serviceability limit state design. He also shared the detailing provisions of EC2 Part 3 for liquid retaining structures.

In section 2, Mr. Rajavel concentrated on BS8102-2009, protection of below ground structures against water from the ground. This code covers the waterproofing barrier materials applied to the structure, structurally integral watertight construction and drained cavity construction. Mr. Rajavel clarified that there are 3 types of water proofing, Type A (barrier protection), Type B (structurally integral protection) and Type C (drained protection). He further elaborated on all types of water proofing. Type A water proofing consists of bonded sheet membranes, liquid applied membranes, geosynthetic clay liners and mastic asphalt membranes. Type B water proofing consists of water proofing admixtures, waterstops and sealants. Type C water proofing protection manages water that penetrates the external shell of a structure by collecting it in a cavity formed between the external wall and an internal lining/wall.

In section 3, Mr. Rajavel shared 2 tutorials on how to design liquid retaining structures to EC2 Part 3 with the audience. With these 2 tutorials, audience can understand clearly the procedure involved for design of liquid retaining structures using clauses in EC2 Part 3.

In section 4, Mr Rajavel started his talk by briefly explained the history of formation of The Institution of Structural Engineers. He then talked about the format of the Chartered Membership Examination. Mr. Rajavel ended the seminar with an answer example for a Chartered Membership Examination question.



Figure 1: Mr. Rajavel delivering the talk

At the end of the talk, there were questions raised by the audience which Mr. Rajavel answered and clarified in more detail. At the end of the event, the Session Chair, Ir. Chong invited representative from IstructE, Ir. Tan to present a token of appreciation to Mr. Rajavel.



Figure 2: Presentation of memento by Ir. Tan to Mr. Rajavel