

Application of Plastic Pipes in the Plumbing Industry

BUILDING SERVICES TECHNICAL DIVISION



by Ir. Gary Lim Eng Hwa and Ir. Ung Ah Hock

THE one-day course content consists of the application of all types of plastic pipes and tour of the manufacturing process of ABS pipe. It was conducted at the training room of Azeeta Pipe System Sdn. Bhd. on 11 September 2012 and was attended by 15 participants who were involved in the plumbing industry. All meals of the day were sponsored by Azeeta Pipe System Sdn. Bhd.

Ir. Ung Ah Hock started the morning session highlighting some of the actual site problems, particularly those related to installations. Various photographs were shown to bring to light a range of shortcomings of installations found in the industry which would cause pipe to burst or crack resulting in water damage even during the project's liability period, where maintenance often gets the blame for such damage. A properly designed plastic piping system operating within its parameters is said to be able to last for 50 years.

The participants toured the manufacturing plant and were shown the various quality assurance steps taken at different stages to ensure that the finished pipe complies with MS 1419 Specifications and Installation Guides of ABS Pressure Piping System.

A number of participants tried out the joining of ABS pipes using solvent cement and were amazed that the joint could withstand the impact and hydrostatic test pressure as high as 48 bars!

The afternoon session was conducted by Ir. Gary Lim Eng Hwa who elaborated on the Fundamentals of Fluid Laws covering Continuity Equation and Bernoulli's Theorem, both of which are essential in sizing the pump and pipe size. To determine the frictional loss in a pipe, Ir. Gary advocated the use of Hazen-William's formula. The term 'Net Positive Suction Head Available and Required' was explained through the use of an example so that the

participants could better understand these two key terms, especially in a situation when a pump is subject to negative suction.

The relevant SPAN draft Uniform Technical Guidelines were also presented during the course as they would be the criteria for the future design of internal plumbing systems, once the guidelines are published by SPAN.

A list of all the plastic pipes used in the plumbing industry was compiled with the corresponding MS colour to enable the participants to easily identify the different type of plastics at a project site.

A case study was carried out to compare the frictional losses of the various types of pipe including metal pipes so that the differences could be highlighted. Participants were reminded that whilst the internal diameter of a galvanized pipe is greater than its nominal diameter, the internal diameter of a plastic pipe may differ significantly especially for higher pressure rated pipes. Major plumbing problems would arise if pipe size is not adjusted for this factor.

Water hammer in a pipe line is a major problem in plumbing installations and should be addressed in the design stage with the use of larger pipe size, incorporating Variable Speed Drive, Surge Tanks, Water Hammer arrestor or slow closing valves.

We are indeed grateful to the Management of Azeeta Pipe System Sdn. Bhd. for offering the training venue and also for the meals provided. ■

Ir. Gary Lim Eng Hwa is a co-opted member of the Building Services Technical Division and a past Council member. Since his retirement, Ir. Gary regularly conducts courses pertaining to fire engineering and plumbing engineering at IEM.

Ir. Ung Ah Hock is a committee member of the Building Services Technical Division and is also the Founder and Managing Director of Azeeta Pipe System Sdn. Bhd. He possesses more than 15 years of experience in the manufacture and installation of thermoplastic piping systems.