

➤ **BAFSA FHC Design Competency Refresher Course (4 days)**

➤ This course follows on from the Basic and Intermediate design courses and covers sprinkler designs which use the fully hydraulically calculated (FHC) method of pipe sizing and water supply selection. It is made up as follows :

➤ **Module 1a: Use and Interpretation of LPC Rules (BSEN12845:2015)**

- Selection of densities and AMAOs relative to storage types and configuration
- Intermediate level protection and spacing
- Sprinkler head selection, operating pressures and k-factors
- Hazen Williams formula and water velocity limits
- System types
- Location of AMAO and additional protection
- Determination of numbers of intermediate sprinklers to be included in calculations
- Pressure and flow curves, q_{cap} , Q_{max} and NPSH
- Void protection
- Town main requirements
- Power requirements for pumps
- ESFR systems
- Hydraulic data to be provided

➤ **Module 1b: Basic Hydraulics**

- Simple hydraulic calculations from first principles
- Maximum flows
- Flow balance at junctions
- Ring mains and orifice plates
- NPSH and suction pipe calculations

➤ **Module 2: Design**

- Plot heads in a roof and rack system and route pipework
- Identify AMAO and heads operating in racks
- Minimum head pressures
- Produce schedule of heads
- Clearances required in racking



Module 3: Hydraulic Calculation

Examine candidates own examples of a roof and rack design and produce information required by the LPC Rules
Calculate remote and favourable pressure and flow demands for simultaneous operation of roof and rack sprinklers

Module 4: Documentation

NPSH required and available and suction velocity
Tank capacities using Q_{max} and q_{cap}
Infill rates
Power required for pumps
Figure TB210.F9 graph
Notices, spares etc
Design verification

This course requires candidates to be familiar with and have had some experience of FHC design, including roof and rack systems, and requires that each candidate will bring along a scale rule, a calculator (that can raise numbers to powers, e.g. $1350^{1.85}$), a lap top computer with the Canute FHC software already loaded, and a copy of the LPC Rules incorporating BSEN12845:2015 and the latest TBs.

British Automatic Fire Sprinkler Association

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