1. Title	Design air-conditioning and ventilation systems for prevention of smoke and fire in buildings
2. Code	EMACDE403A
3. Range	Apply specialized knowledge of air-conditioning and ventilation systems, at design studios or relevant work sites, for prevention of smoke and fire in buildings and perform tasks of designing, installing, inspecting, commissioning, testing, operating, repairing and maintaining air-conditioning and ventilation systems.
4. Level	4
5. Credit	9
6. Competency	<u>Performance Requirements</u> 6.1 Knowledge of air-conditioning and ventilation systems for prevention of smoke and fire in buildings ♦ Understand the relationship between air-conditioning and ventilation systems and the prevention of smoke and fire in buildings, including: • Hazards of fumes in buildings • Generation and flow of fumes and flames in buildings • Methods of controlling fumes and flames in buildings ♦ Understand the types and working principles of smoke extraction systems and relevant codes of practice, including: • Functions of smoke extraction systems • Working principles of static smoke extraction systems • Working principles of dynamic smoke extraction systems • Code of Practice for Minimum Fire Service Installations and Equipment and Code of Practice for Inspection, Testing of Installations and Equipment issued by the Fire Services Department and the impact of both documents on the requirements of smoke extraction systems ♦ Understand the working principles of staircase pressurization systems and relevant codes of practice, including: • Functions of staircase pressurization systems • Working principles of staircase pressurization systems • Code of Practice for Minimum Fire Service Installations and Equipment and Code of Practice for Inspection, Testing of Installations and Equipment issued by the Fire Services Department and the impact of both documents on the requirements of staircase pressurization systems • International standards on the requirements of staircase pressurization systems ♦ Understand various methods of VAC control approved by the Fire Services Department

	6.2 Design air-conditioning and ventilation systems for prevention of smoke and fire in buildings	♦ Perform tests on smoke extraction and staircase pressurization systems according to the Code of Practice for Minimum Fire Service Installations and Equipment and the Code of Practice for Inspection, Testing of Installations and Equipment issued by the Fire Services Department ♦ Apply the knowledge of air-conditioning and ventilation systems for prevention of smoke and fire in buildings to make analysis and judgement so as to solve the problems involved in designing, installing, inspecting, commissioning, testing, operating, repairing and maintaining air-conditioning and ventilation systems; communicate with the sector and clients
7. Assessment Criteria	The integrated outcome requirement of this unit of competency is: (i) Capable to design air-conditioning and ventilation systems for prevention of smoke and fire in buildings and make analysis and judgement so as to solve the problems involved in designing, installing, inspecting, commissioning, testing, operating, repairing and maintaining air-conditioning and ventilation systems; to communicate with the sector and clients.	
8. Remarks	The credit value of this unit of competency is set on the presumption that the person already possesses basic knowledge of ventilation systems and relevant regulations.	