

The Evolution and the Future Development of the Education and Training of Licensed Plumbers

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Introduction

When the first technical institute in Hong Kong was established in Morrison Hill in 1969, the training course, Craft Certificate in Plumbing and Pipefitting, was amongst the first batch of technical skills in Hong Kong provided with formal and structured vocational education and training. After several decades of evolution and development, the education and training of Licensed Plumbers has recently been subject to a major review and substantial change in the wake of the 2015 lead-in-drinking-water incident. This paper provides a brief historical account on the evolution and then highlights the recent changing ethos of the education and training of Licensed Plumbers

1960s to 80s

The development of vocational and professional education and training (VPET) in Hong Kong can be traced back to 1969 when the first technical institute was founded at Morrison Hill, Wanchai. One of the training courses then offered was “Craft Certificate in Plumbing and Fitting” and the Chinese Name at that moment was “潔具及喉管裝配行業技能證書”. It was a 3-year part-time course. The entry requirement was “completion of primary six”. The intake was talking about less than 20 per year at that moment. The subjects covered were:

- Craft Theory
- Craft Practice
- Craft Calculation; and
- Craft Drawing
- Craft Science
- Building Construction

With the rapid industrialization of Hong Kong, the number technical institute was increased to five by the end of 70s. In addition to Morrison Hill Technical Institute, Haking Wong Technical Institute also offered the Craft Certificate course. The course was then undergone substantial changes. The entry requirement was raised to “completion of Form 3 of secondary education”. The learning contents were expanded and elaborated as follows:

Stage 1

- Science I
- Calculations I
- Drawing I
- Craft Theory C I
- Craft Practice C I

Stage 2

- Science C II
- Calculations II
- Drawing C II
- Craft Theory C II
- Craft Practice C II

Stage 3

- Craft Theory C III
- Building Construction III
- Specification C III
- Measurement C III
- Craft Practice C III

1990s to 2000s

One of the major developments in the licensing of plumbers in Hong Kong was the announcement by the Water Supplies Department in 1992 regarding the qualification requirements of Licensed Plumber. The Craft Certificate in Plumbing and Pipefitting was stipulated as one of the requirements to become Licensed Plumber, and in addition, the candidate had to obtain the Certificate in Plumbing Services (Hong Kong), which was a new 35-hour short course offered by VTC.

With the development of the Hong Kong Institution of Vocational Education (IVE) in 1999, the courses were reviewed and went through a full validation exercise. The Chinese name of the Craft Certificate course was changed to “水喉全科技工證書” while the English name remained unchanged. The course was then developed into the current 3-year semester-based part-time programme with the following curriculum:

Sem 1

Pipe Work Installation
Plumbing Mathematics
Plumbing Practice I(A)

Sem 2

Potable & Flush Water Supplies
Plumbing Science
Plumbing Practice I(B)

Sem 3

Hot Water Supply
Construction Drawing
Plumbing Practice II(A)

Sem 4

Drainage Systems
Plumbing Drawing
Plumbing Practice II(B)

Sem 5

Fire Services & Gas Installation
Building Construction
Plumbing Practice III(A)

Sem 6

Plumbing Measurement
Introduction to Information Technology
Plumbing Practice III(B)

On the other hand, the duration of the short course, Certificate in Plumbing Services (Hong Kong), was increased from 35 hours to 39 hours. The contents were developed into a 2-module system:

- (i) 32-hr review on the latest statutory requirements and procedures and then followed by a 2-hr written test; and
- (ii) 5-hr practical assessment on the hands-on skills.

The nature of the short course was mainly focused on assessing the statutory knowledge and technical skills of the practitioners.

The number of graduates of the Craft Certificate has increased gradually from less than 20 in 1970s to more than 100 per year in 2010s, and the number of graduates of the short course has increased from about 60 per year in 1990s to more than 90 per year in 2010s.

Latest Developments

The 2015 lead-in-drinking-water incident initiated a series of changes to the training courses. The learning contents of the Craft Certificate programme were enriched with more updated knowledge on drinking water quality and with emphasis on enhancing the students' consciousness on professional ethics and life-long learning. The 39-hour short course, Certificate in Plumbing Services (Hong Kong), was changed into an 81-hour module-based programme as follows:

Module Title	Contact Hours	Assessment Hours
1. Statutory Requirements and Procedure of Plumbing Works in Hong Kong	36	2
2. Project Management for Plumbing Works	30	2
3. Plumbing Practical	6	5
Total:	72	9

The Way Forwards

Before the 2015 incident, the major plumbing industry associations have recognized the urge to upgrade the status of Licensed Plumber, not in term pecuniary reward or social prestige, but their professional competencies, and therefore, with their input, IVE developed a series of training programmes in 2013, under the award titles of Diploma, Professional Certificate and Professional Diploma benchmarked to the Qualification Framework Levels 3 to 5, to provide comprehensive vocational and professional education and training for plumbers with the opportunity to articulate to recognized degree programmes and then to become professional. The learning contents of the programmes are not limited technical skills but also include project management, contract administration, professional ethics, etc. At the same time, IVE in collaboration with the industry associations organized a number of short courses to provide updated technical and professional knowledge to the practitioners, which were then developed into the current CPD courses for the "Voluntary Continuing Professional Development Scheme for Licensed Plumbers" launched by the Water Supplies Department in 2016 in response to the recommendations after the 2015 incident.

The recent changes and development all comes in line with the inevitable changing role of Licensed Plumbers. Building works is becoming more and more complicated and the nature of work of Licensed Plumbers has becoming more and more demanding. A Licensed Plumber is no longer acted as individual plumber to "carry out" the plumbing work but as a team leader to supervise and manage a plumbing project. The society relies not only on their hands-on technical skills but also on their professional knowledge and judgement. The practitioners in the industry have long felt the changes and resolved to take up the duties and responsibilities by improving their competencies. The initiation of higher level of training programmes and the inclusion of learning contents like project management, professional ethics, CPD, etc. in their education and training are rendering them more and more in par with other professionals. The 2015 incident propelled the momentum of changes with the involvement of the major stakeholders in the industry. The Water Supplies Department has launched some measures to tighten up the practice of Licensed Plumbers and to enhance their training. IVE will keep abreast with the development and review their training programmes proactively to facilitate the changes. Recently, IVE has initiated a series of change of its academic structure overseeing their plumbing training programmes with the objective to draw in more relevant resources across various units within VTC to gear up its capability for the development.