

**THE HONG KONG INSTITUTION OF ENGINEERS
ENGINEERING GRADUATE TRAINING SCHEME “A”**

MODEL TRAINING GUIDE

BUILDING SERVICES ENGINEERING

Model Training Guide (MTG)

The Model Training Guide is a guide to Companies on the practical experiences considered relevant in the formal training of potential Professional Engineers.

Training Programme (TP)

The Training Programme is the plan prepared by a Company which is designed to meet the experiences listed in the MTG and to meet the objectives set out in the Record of Objectives. This ‘plan’ is presented for approval on Form TD1 Part 2 as a part of the Assessment/Reassessment procedures.

Training Period - Nominally 2 years

The length of the training is based on meeting the objectives and not determined by time. The times shown below are indicators only of the time that a trainee would normally take to meet the relevant objectives.

Training Aim

It is important to note that the Scheme “A” Graduate Training is designed to be a fast track by which a graduate can obtain full professional status. The training therefore covers both Technical and Professional matters.

Continuing Professional Development (CPD)

An implicit part of the Scheme “A” training is related to CPD which should be an integral and relevant part of the development of the graduate trainee.

Training Programme Content

(C=Core, D=Desirable)

1. Introduction (Suggest 1 week in total)
 - 1.1 Information about the company:
 - (a) Size, history, subsidiaries if any
 - (b) Products, markets and competitors
 - (c) Management structure and functions
 - (d) Communication systems
 - (e) Locations and layout of the facilities
 - (f) Safety, health and welfare
 - (g) Joint consultation arrangement if any

1.2 Information about training programmes, prospects & career development:

- (a) Specialist skills
- (b) Work of related disciplines
- (c) Management techniques
- (d) Sources of guidance
- (e) Company policies
- (f) Code of conduct

2. Professional & General

- 2.1 HKIE Activities
 - (a) History, role and organization
 - (b) Developing links with HKIE
- 2.2 Professionalism
- 2.3 General Personal Development
- 2.4 Personal Qualities/Demonstrating
- 2.5 Occupational Safety & Health (S&H)
- 2.6 Environment
- 2.7 Communication
 - (a) Orally
 - (b) Written
- 2.8 Human Resources
- 2.9 Leadership & Management
- 2.10 Own Organisation
- 2.11 Technology/Business

3. Building Services Practice, Design and Projects (10 months in total)

(The aim of the training is to develop the trainee with good knowledge in multi-disciplines and become competent in at least one particular discipline.)

- 3.1 Basic Engineering Practice: knowledge and use of hand power tools; safety on site; sheet metal work; welding; surface treatments and finishes; anchoring and fixing of equipment and plant; cabling and piping fixing and jointing techniques; properties of metals and other building materials etc. (minimum 2 months C).
- 3.2 Design which could include research, investigation or development of building services components, plants, products, equipment systems and engineering projects in accordance with requirements and specifications (minimum 2 months C).
- 3.3 Manufacturing OR construction and installation of building services plant and associated equipment (minimum 2 months C)
- 3.4 Inspection, testing, commissioning and operation of building services installations; knowledge of installation and workmanship standards and skills in identification of sub-standard works; planning and implementation of maintenance programmes for reliability and maintainability; safety and environment considerations; management of building services systems; emergency and major repairs; consideration of energy efficiency and energy conservation measures etc. (minimum 2 months C).
- 3.5 Mainland China project experience (D)

4. Technical, Commercial & Management Aspects (8 months in total)
 - 4.1 Interpretation, preparation, communication and co-ordination of requirements and specifications and drawings (minimum 1 month C)
 - 4.2 Knowledge on relevant statutory regulations and codes or requirements other organizations relating to building services disciplines (D)
 - 4.3 Tendering procedures, tenders appraisal and contract administration (D)
 - 4.4 Estimating manpower, materials, installations and transportation costs; cost monitoring and control techniques (minimum 1 month C)
 - 4.5 Project work scheduling and management OR management information service (minimum 2 months C)
 - 4.6 Communication skills in verbal and written Chinese and English (D)
 - 4.7 Preparation of reports, operation and maintenance manuals etc. (minimum 1 month C)
 - 4.8 Marketing, sales and contract negotiation techniques (D)

5. Consolidating Stage (6 months in total)

This is training in any one or more of the activities outlined in Section 3 or 4, which leads to an initial appointment as an engineer. It should also aim to develop skills and knowledge needed to make an effective start. Special courses dealing with particular technologies having a bearing on future work may be necessary during training; computer applications should also be included, where appropriate.

N.B.

1. The minimum training period must not be less than 24 months.
2. The programme set out is for guidance only but substantial departure should not be made. Employers should endeavour to provide training to their trainees in as many areas as possible as is appropriate to the sector of employment.
3. This guide should be read in conjunction with Section 3 of the Membership Admission Requirements booklet.
4. During their training, each trainee is required to maintain Graduate Training Log Book, CPD Logbook and Record of Objectives.