

# **Competence Profiles – Guidance for applicants and Assessors**

## **PART 2 – INDUSTRY CLASSIFICATION (G) – ROYAL AIR FORCE**

### **Introduction**

During recent years the Royal Air Force (RAF) has, like many sectors of industry, undergone major changes. However, it remains fundamentally a hierarchical organisation with predictable and managed levels of exposure to responsibilities, in differing environments, which should enable the identification of personnel who have attained the minimum level of professional engineering responsibility required for corporate membership of the Institution.

The RAF has invested and will continue to invest heavily in training. All engineer officers undergo Initial Officer Training (a 24-week course) designed to initiate inexperienced students into the practices and traditions of the Service. This course is heavily biased towards management and leadership training. However, a fully IMechE-accredited 25-week Engineer Specialist Training Course follows this initial training; this provides both the theory and the practice of engineering management, together with exposure to key technological subjects. The course is designed to provide newly commissioned engineer officers with sufficient knowledge to be fully productive in their first tour of duty. Where necessary, this training is supplemented by specialist technology modules required for specific appointments.

All engineer officers are expected to carry out a wide range of duties ranging from man management to major project management, commencing with their first appointment, normally in the rank of flying officer. In order to expose personnel to a wide variety of responsibilities the RAF proactively moves them within 18 months to 2 years, for the first couple of appointments, after which the posting frequency reduces to every 2 to 3 years as the complexity and responsibilities in a post increase. The result is that the vast majority of engineer officers should have acquired the experience and competences to qualify for Membership by the time they have completed 6 years' service, or 3 tours of duty. However, in some instances where relevant civilian experience is applicable, the time-scale can be reduced.

### **Requirements for election or transfer to Member**

#### **Engineer Officer candidates**

Engineer officer posts and their associated job descriptions are too numerous and diverse to explain in detail within the context of this guide. However, it would be expected that a suitable candidate for election or transfer to Member would have completed at least 3 tours of duty as a junior officer, which would normally include one tour as a staff officer in a headquarters or engineering authority. Applicants in the rank of squadron leader would certainly have completed this minimum number of tours and should be able to demonstrate their suitability for corporate membership without difficulty. Generally, they would have been responsible for the development, planning and control of the maintenance or other technical/logistical support of several large operations, possibly involving assets of several £100M and/or management responsibility for squadrons in the region of 200 technical personnel. This would include the career development and direct supervision of junior engineer officers, possibly of chartered status themselves.

Within an individual's first 3 tours it is likely that he/she would have had experience on an operational unit, typically a flying station, with responsibility for the management of a flight of at least 20 personnel, normally many more. He/she would have been responsible to the squadron commander for the efficient running of the flight, in terms of achieving the maintenance task and managing subordinates.

Away from the operational units, within the first 3 tours, an individual is likely to have held a staff appointment where the emphasis is less on managing manpower and more on project management. For example, an engineer could be a member of an Integrated Project Team (IPT). These multidisciplinary teams are involved with the specification and procurement of new equipment and/or the strategic management of the maintenance/modification of equipment, once in service. IPT's manage projects spanning many years and involving the investment of large sums of money. The work is largely in the field of project and risk management, although specialist technical knowledge is required to perform as an intelligent customer and implement the integration of equipment into an existing system. Indeed, the RAF often prepares key personnel for these rôles with a period of further training, sometimes to second degree level.

#### Non-Engineer Officer candidates

In addition to the mainstream engineer officer route, suitably academically qualified applicants drawn from the non-commissioned cadre might also be eligible for corporate membership. Typically, the applicants would be drawn from the List 1 aircraft engineering trades, i.e. airframes, propulsion and weapons.

At the time of applying, the applicants would be expected to have served at least one tour of approximately 2-3 years in duration, in the post of, for example, squadron trade manager, engineering authority technical support, aircraft maintenance team leader, etc. Therefore it is anticipated that they would have completed at least one tour in the minimum rank of sergeant; notwithstanding, the likelihood exists that applicants below the rank of sergeant could consider applying — and their applications would require close scrutiny.

With their lack of exposure to the current engineer officer elements of specialist and staff training, all non-engineer officer applicants would have to demonstrate full and convincing evidence of the required competences to achieve election or transfer to the class of Member. In cases of real difficulty in reconciling a candidate's application with the required levels of competence, advice could be sought from the senior RAF member of the Institution's Aerospace Industries Division Board.

### **Assessment of Competences**

The beneficial effect of frequent postings into a wide variety of appointments is that officers are likely to acquire key competences rapidly, as defined and recognised by the Institution. When applying for election or transfer to Member, an individual should have completed at least 6 years of service in a variety of posts and should have achieved, and be able to demonstrate, competences in all relevant sections. The fact that an applicant is currently employed in one particular aspect of engineering management should not detract from experience gained *en route*. It must also be recognised that an applicant could well be redeployed into another area of activity before his/her application has been fully considered by the Institution.

#### Competence statements A and B

Successful candidates will be able to demonstrate their understanding of engineering principles in a wide range of applications, from aircraft and engine technology to weapons integration. They should have no difficulty in demonstrating attributable examples of innovation and problem solving. Where candidates are or have been involved primarily with the engineering management of maintenance, the assessors should seek evidence of projects and initiatives with which the individual has been involved.

Examples of situations or activities that give mechanical engineers the opportunity to achieve and demonstrate professional competence in these areas include:

- Exercising delegated airworthiness and safety responsibility in aircraft/equipment support authorities.

- The management of an aircraft fleet, the monitoring of airframe and engine usage and the analysis of operational practices (based on sound engineering principles) which will reduce the consumption of fatigue life. The implementation of the most cost-effective procedures.
- The implementation and management of the repair and overhaul of a fleet of aircraft or equipment, with service personnel or via a commercial work share.
- Introduction into service of new equipment, with associated documentation, training and operating procedures.
- The analysis of competing bids for new equipment, liaising closely with other MOD staffs and with manufacturers and suppliers.
- Fault analysis on aircraft or equipment across system boundaries.

The above list is far from exhaustive but gives an indication of typical levels of responsibility.

#### Competence statements C and D

Leadership, management, communication and inter-personal skills are key requirements for any RAF officer; indeed, a high level of competence across all these areas would be required before graduating from Initial Officer Training and Engineer Specialist Training. The key elements of competence are included in the majority of job descriptions for engineer officers in the RAF. Engineer officers routinely manage equipment, personnel and, increasingly, budgets, all within the context of recognised quality management systems such as ISO 9002. Engineers of all ranks are expected to be capable of presenting technical and non-technical subjects to subordinates, superiors and external agencies. Effective communication, both written and oral, is essential within the Service and should be self-evident in the Professional Review Report and at interview.

#### Competence statement E

Safety procedures and rules that should be followed vary from one workplace to another within the Service. However, there is close observation of, and compliance with, the latest Health and Safety and Environmental Protection legislation across the RAF. Indeed, as line managers, engineer officers will have responsibility for compliance with the legislation and will have under their command specialists trained in the assessment of risk and hazardous procedures.

Assessors should be aware that SARTOR 3 interprets Continuing Professional Development (CPD) as commencing at the point where Chartered status is attained; therefore applicants are not required to provide a record of courses attended, etc., when applying for corporate membership.

All engineer officers are now issued with a personal development folder in which they can maintain a record of their education, employment, key achievements and further training. Nevertheless, it must be stressed that the updating of CPD records and development action plans and involvement with Institution activities, etc., are seen as personal responsibilities and are therefore not enforced by the RAF; they should, however, be proved at the Professional Review stage.

Examples of CPD activities recognised by the Institution as acceptable include:

- extra qualifications such as an MBA, Diploma in Engineering Management
- any relevant technical or business courses
- conducting or attending workshops
- attending, presenting or participating in seminars and conferences
- presenting or attending lectures
- writing technical papers

- reading technical articles and journals
- distance or open learning
- secondments and job rotation
- updating in own and other fields of work
- Institution meetings or events
- active IMechE committee work
- learning a foreign language
- involvement in government activities
- community and charity work

### **Requirements for election or transfer to Fellow**

In order to complete the successful transfer from the class of Member to that of Fellow, the applicant would at the time of applying have held a position of senior engineering responsibility for a minimum of 12 months. In the RAF, at station level, such appointments include senior engineering officers on flying squadrons and engineering support squadrons; whereas at IPT or Command level, they include engineering authorities, support authorities and engineering staff appointments in rôle offices, or other related duties. Ideally, given the route prescribed above for election or transfer to Member, the applicant would have achieved chartered status during a previous tour and would also be able to prove robustly his/her CPD commitment since becoming a Chartered Mechanical Engineer. Further, the applicant would, without difficulty, also be able to demonstrate their rôle and involvement in producing high-level engineering and support decisions.

The majority of applicants would have completed some form of intermediate staff training (i.e. Basic or Advanced Staff Course, Senior Logistics Management Course, as examples) by the time that they should be considered eligible for transfer to the class of Fellow. In some instances, the RAF would have sponsored the applicant to complete a second degree in either an engineering or a business discipline. Additionally, further examples of suitable CPD activities not covered under the requirement for Competence Statement E above include:

- MPDS mentoring
- Defence Engineering & Science Group mentoring on behalf of the Civil Service
- Acting as an IMechE Membership Panel interviewer

For candidates applying directly for the class of Fellow, a Professional Review Report similar to that required for the class of Member would be required in addition to an interview. In particular, this report must contain additional supporting evidence detailing:

- The position of senior engineering responsibility held by the applicant
- The applicant's contribution to the professional development of young engineers
- How the applicant intends to keep up to date regarding developing technologies, from both a technical and a commercial standpoint.

Finally, a Development Action Plan detailing a future programme of CPD would be required from applicants in either category (transfer from Member or direct election).