What is SQEP
Suitably Qualified and Experienced Personnel?
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Suitably Qualified and Experienced Personnel

Definition

Suitably Qualified and Experienced Personnel (SQEP) is a term that originated within the UK nuclear industry and is also used within the defence industry but similar requirements arise in other industry sectors and other countries. Typically, to be regarded as a SQEP, one requires a professional qualification and several years of experience, with recognition that one’s skills and understanding can be relied upon to resolve a technical problem to the required standards.

This introductory guide highlights the issues related to the process of establishing a SQEP. There is a wide range of technical skills which may have to be considered for general engineering but here the scope is restricted to the conduct of computational simulation activities as addressed by NAFEMS. With the advent of more powerful computers, the application of computational mechanics has gained widespread acceptance in engineering companies involved in the design and analysis of engineering components and structures. There are many commercially available computer codes which run on a wide range of computer hardware to analyse the behaviour of a structure under various loading conditions. It is not the computers that solve engineering problems though. A typical problem is formulated into a mathematical model which is run by computers and the solution must be subjected to an engineering appraisal; hence, the need to have a SQEP to perform such a design and analysis process.

Need for SQEP

Nearly 9 out of 10 engineering companies will require some form of SQEP capability. There are commercial, legal and regulatory requirements to engage a SQEP. It is worth noting that such responsibilities can be discharged by delegating authority to a SQEP. In the UK, the nuclear industry regulator (Office for Nuclear Regulation) requires that any activities related to nuclear safety are carried out by Suitably Qualified and Experienced Personnel (SQEP).

For the general engineering and construction industry, the Construction (Design and Management) Regulations 2007 in the UK require the designers to be competent for the job.
Levels of SQEP
It is not reasonable to expect businesses to employ experts to conduct all levels of a job. Generally, the expertise and skill levels are matched with the requirements of the job. For this purpose, five levels of SQEP are recommended, as follows:-

**Level 1 – Supervised**
Can use the skill under supervision but not yet ready to take on general tasks without supervision or has worked in this area in the past, but is no longer familiar.

**Level 2 – Unsupervised**
A person who can apply the defined skill in an unsupervised role, but is aware of one’s own limitations when faced with a new or novel problem, when guidance would be obtained from a Level 3 or above.

**Level 3 – Advising and guiding others**
Can take on a range of complex novel tasks without supervision and can provide advice and guidance to others in the relevant disciplines.

**Level 4 – As a company “Expert”**
Has expert knowledge and ability and is recognised internally as an expert in the field. Can provide independent advice to difficult and technically challenging tasks and technical leadership to the relevant skill area.

**Level 5 – As an externally recognised “Expert”**
As per company expert, but is in addition recognised externally, by clients, peers in their profession, agencies and professional bodies and may sit on nationally or internationally recognised bodies or committees.

Typically for an engineering consultancy the largest demand is for SQEP levels 2 and 4.

Building SQEP
A case supporting SQEP status cannot be built by simply serving time in a job. It is built through a process of developing competencies. A SQEP is developed gradually over several steps to build competencies to handle more complex problems using a variety of tools as shown in the figure overleaf.

The SQEP development process will require regular appraisals, mentoring and Continuous Professional Development (CPD) activities. These can be achieved by establishing formal organisation positions like Technical Discipline Mentor and Head of Profession who will have the right to accept or reject skill claims. The Professional Simulation Engineer scheme being run by NAFEMS ([www.nafems.org/pse](http://www.nafems.org/pse)) can be helpful. Specific work-based learning needs to be put in place. Further guidance can be taken from a project like EASIT² ([www.easit2.eu](http://www.easit2.eu)) where an Educational Base consisting of competence statements has been developed that can be used to guide the development of effective learning modules for industry.
Many organisations have a poor understanding of the skills, experience, qualifications, etc., that their staff possess. Some organisations use a database of CVs or provide staff profiles via their intranets. To develop and manage SQEP, a ‘Qualification and Experience’ database or register can be created in which each staff member has to put in the following information:

The first four blocks of information set the scope of the skills claimed by or on behalf of the SQEP. A SQEP database or register must include the record of independent assessment of the skill claims made by an individual. The next entries provide a factual record of the academic and professional qualifications of the individual. The seventh entry allows evidence to be gathered of any specific training required by the client. Finally, the eighth entry addresses the need for product and regulatory environment knowledge in addition to the understanding of the tools and techniques of analysis.

It is also possible to meet the demands of a project by demonstrating that a team of engineers (members of staff or contractors), rather than an individual, constitutes SQEP for a task.
**What is SQEP?**

<table>
<thead>
<tr>
<th>Area</th>
<th>Definition</th>
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<tbody>
<tr>
<td>1. Technical discipline</td>
<td>The main technical disciplines for staff (e.g. mechanical, electrical, safety, IT, QA etc.)</td>
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<tr>
<td>2. Skill</td>
<td>Particular areas and sub areas of expertise within the technical discipline</td>
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<tr>
<td>3. Experience</td>
<td>Industrial sectors (e.g. nuclear, defence, aerospace, automotive, etc.)</td>
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<td>4. Level of competence</td>
<td>5 levels of competence for each skill from 'supervised' to 'externally recognised expert'</td>
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<td>5. Academic qualification</td>
<td>University and School qualifications</td>
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<tr>
<td>6. Professional qualification (e.g. Chartered status)</td>
<td>Levels of award (e.g. C.Eng, fellow, member, associate member etc.) for all recognised professional institutions</td>
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<td>7. Client awarded qualification</td>
<td>Client specific awards and accreditations</td>
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<tr>
<td>8. Understanding of regulatory requirements</td>
<td>Licensing regulations and standards experience</td>
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**Advantages of a SQEP process**

- Helps to develop technical capability and meet the growing need for engineers who are SQEP.
- A well-managed SQEP process can bring consistency in demonstrating suitability and assuring technical quality.
- Managing SQEP is good for business as well as safety.