# THE ORIGINS OF FIRE SAFETY ENGINEERING IN THE UK

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## ABSTRACT

The development of Fire Safety Engineering as a separate engineering discipline evolved in the UK from an inspirational idea of Frank Rushbrook, Firemaster of Edinburgh from 1960 - 1970. He became increasingly concerned about the rapid changes that were taking place in industry and commerce which were leading to new methods of construction that permitted much larger buildings, the introduction of new materials of unknown fire properties, as well as high hazard industrial plant of which firefighters had little if any experience. He appreciated the fact that members of the Fire Brigade were ill-equipped to deal with these new problems or to interact appropriately with designers, architects and engineers who were taking full advantage of the opportunities that accompanied these advances. He persuaded the University of Edinburgh to establish a Department of Fire Engineering. Dr David Rasbash of the Fire Research Station, Borehamwood, was appointed as the first Professor of Fire Engineering, with the remit to establish an academic course which would stand alongside the other conventional Engineering disciplines. At that time, there were no textbooks, no syllabus, and very few individuals, if any, on whom he could call to develop and teach the course. Between 1974 and 1984, a one-year postgraduate degree was offered during which time a syllabus was developed, the course was established, and the requirements of the University regarding content and academic rigour were met. That part of the course devoted to "fire science and fire dynamics" was taught during the spring semester to fire protection engineering students at Worcester Polytechnic Institute, MA. The notes developed for this course formed the first draft of "Introduction to Fire Dynamics", the first edition of which was published by Wiley in 1985.

Unfortunately in the 1970s and 1980s there were very few posts available in the UK for our graduates. It was not until the building regulations were amended to allow performance-based fire safety engineering design that "industry" began to seek graduate Fire Safety Engineers. The Institution of Fire Engineers became very active in the late 1990s and – with the encouragement of the Engineering Council – absorbed the UK Chapter of the SFPE and the fledgling Society of Fire Safety Engineers to develop a Professional Institution capable of providing "professional services", specifically ensuring that the high standards were met by members of the "Engineering Council Division" of the IFE, at the appropriate levels (Chartered Engineer, Incorporated Engineer and Engineering Technician). Three other Universities developed undergraduate courses in Fire Safety Engineering, but during the first decade of the new century they have had difficulty in attracting students. Fire Safety Engineering is still not recognised as a career for youngsters entering University for the first time.

In the meantime, consulting engineers have struggled to find suitably qualified individuals capable of contributing to the growing amount of fire-related work that needs to be undertaken. Many companies still rely on using postgraduate mechanical and civil engineers and effectively training them on the job – which was really the only option available until quite recently. However, since Margaret Law joined Ove Arup and partners in 1973 (from the Fire Research Station) and showed how fire problems could be resolved by the application

of what was then known about fire and fire behaviour, the growth of Fire Safety Engineering has become an inevitability. Research has been progressing and has put us in a much stronger position to be able to apply fire science and fire dynamics to solve complex problems of design and construction. There is now an academic syllabus – supported by several new text books published since 2000 – that has been adopted world-wide, providing a common basis for the discipline. There is now real potential for Fire Safety Engineering to grow and become properly established, but it is necessary to ensure that graduates of the highest quality enter the profession and act as torch-bearers for future generations of students – as well as graduate engineers in other disciplines.