



International Civil Aviation Organisation

Sixth Meeting of CNS/MET Sub Group of APANPIRG

Bangkok, Thailand, 15 to 19 July 2002

Agenda Item 9: Consideration of training needs for engineering/technical staff

ENGINEER COMPETENCY

(Presented by Australia)

SUMMARY

Airservices Australia is considering introducing a procedure that assesses the ongoing competency of its professional engineers, related professionals, and technical officers. The procedure proposed is based on the Institution of Engineers, Australia National Generic Competency Standards.

Background information is also provided on the APEC Engineer Register and the Engineers Mobility Forum Agreement.

1. BACKGROUND

1.1 States have a requirement to ensure competent and qualified persons undertake key roles in the operation and maintenance of the airways systems.

1.2 At the process level, Airservices Australia has a standard for those involved in removing, restoring, working on live and certification of facilities.

1.3 The issue remains on how to assure the competency and qualification of engineers, related professionals, and technical officers who work outside of defined processes.

2. PROPOSED SYSTEM BEING DEVELOPED

2.1 Australian Civil Aviation Safety Regulation 171 requires qualified and competent persons to authorise the design of, or changes to, a service or facility.

2.2 For the workplace or for the practice of a profession, competency can be defined as: **'... the ability to perform in an occupational category or function to the standards expected in employment.'**

2.3 A competency program based on the National Generic Competency Standards published by the Institution of Engineers, Australia (IEAust) is being developed. Airservices Australia's program would be extended to account for professional staff not fitting the strict IEAust definitions of an engineer, engineering technologist or engineering officer.

2.4 The effective assessment and recording of competency provides evidence that engineers, related professionals, and technical officers with Airservices Australia are acting in a responsible and professional manner.

2.5 The program will:

- be tailored to include related professionals and technical officers.
This will be achieved by the incorporation of material developed for other professionals by their relevant professional institution - an example is the Computer Professional Program of the Australian Computer Society, and the translation of the Engineering Associates requirements to the Technical Officers.
- recognise competency level achievements certified by IEAust and registration on the National Professional Engineers Register.
- propose to IEAust the organisational competencies developed within Airservices Australia for recognition.
- require continuing professional development by the individual.
The model for continuing professional development is based on the requirements proposed by IEAust.
- include commitment to ethical behaviour modelled on the IEAust Code of Ethics

2.6 The proposed competency standard is under development, and is proposed to be promulgated as a standard.

2.7 This standard is directly related to the IEAust National Generic Competency Standards, and there are additional elective competency units proposed. These additional units have been drafted to incorporate aviation industry requirements.

3. APEC ENGINEER REGISTER

3.1 Australia has been an active participant in a project which has led to the establishment of the Asia-Pacific Economic Cooperation (APEC) Engineer Register in a number of economies in the APEC organisation.

3.2 This is a newly established international register of professional engineers. The economies which have been assessed as having the systems in place to operate an APEC Engineer Register are: New Zealand, Australia, Malaysia, Hong Kong (China), Japan, Korea and Canada. Other economies are participating in the project but have not as yet had their assessment statements approved.

3.3 This register ensures that professional engineers in the aforementioned economies have the opportunity to have their professional standing recognised within the APEC economies thereby contributing to the globalisation of professional engineering services.

3.4 This is of particular benefit to engineering firms that are providing services to other APEC economies but it also adds value to individuals who may wish, at some stage, to work in these economies.

3.5 The requirements to be an APEC Engineer are those for Membership of IEAust (MIEAust), IPENZ (MIPENZ), etc plus an additional period of practical experience. Thus, users of engineering expertise will find that APEC Engineers are able professional engineers able to work independently. Rather than rely totally on self-certification of areas of competence, the APEC register also requires engineers to be classified into one of several engineering discipline categories. This indicates the area of their competence, but does not imply that they are competent across the whole of the discipline, and lack competence outside that discipline. Each APEC engineer must still restrict themselves under the code of ethics to work only in areas they are competent.

4. ENGINEERS MOBILITY FORUM

4.1 The Washington Accord, signed in 1989, is an agreement between the bodies responsible for accrediting professional engineering degree programs in each of the signatory countries. It recognises the substantial equivalence of programs accredited by those bodies, and recommends that graduates of accredited programs in any of the signatory countries be recognised by the other countries as having met the academic requirements for entry to the practice of engineering. The Washington Accord covers professional engineering undergraduate degrees.

4.2 As a result of an initiative taken by the Washington Accord signatories, the participants established a forum, known as the Engineers Mobility Forum (EMF), through which they, as the representatives of the relevant engineering organisations in their respective countries or territories, would:

- develop, monitor, maintain and promote mutually acceptable standards and criteria for facilitating the cross-border mobility of experienced professional engineers;
- establish a decentralised International Register of Professional Engineers which would provide a readily accessible framework for recognition by the responsible bodies of the substantial equivalence in the competence of experienced professional engineers from the participating economies;
- seek to gain a greater understanding of the existing barriers to mobility and to develop and promote strategies to help governments and licensing authorities manage those barriers in an effective and non-discriminatory manner;
- encourage the relevant governments and licensing authorities to adopt and implement mutual mobility procedures consistent with the standards and practices recommended by the signatories to such agreements as may be established by and through the EMF;
- identify, and encourage the implementation of, best practice for the preparation and assessment of engineers intending to practice at the professional level; and
- continue mutual monitoring and information exchange by whatever means are considered most appropriate, including:
 - regular communication and sharing of information concerning assessment procedures, criteria, systems, manuals, publications and lists of recognised practitioners;
 - invitations to observe the operation of the procedures of other participants; and
 - invitations to observe meetings of any boards and/or commissions responsible for implementing key aspects of these procedures, and relevant meetings of the governing bodies of the participants.

4.3 The following organisations are members of the Engineers Mobility Forum:

The Canadian Council of Professional Engineers
The Engineering Council of South Africa
The Engineering Council, United Kingdom
The Hong Kong Institution of Engineers
The Institution of Engineers, Australia
The Institution of Engineers of Ireland
The Institution of Professional Engineers, New Zealand
The United States Council for International Engineering Practice
The Japan Consulting Engineers Association
The Board of Engineers, Malaysia

4.4 The expertise of an EMF engineer is essentially the same as an APEC Engineer. The difference is solely in terms of the country-based membership of the agreements - some members of the APEC agreement are not members of the EMF agreement and vice versa.

5. RECOMMENDATION

The meeting is invited to consider:

- a) the roles and functions of certification registers for the Professional Engineers, Related Professionals, and Technical Officers,
- b) how such registers can be usefully applied in aviation for ensuring safety of ground infrastructures.

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Contact: Jeffrey Bollard
Chief Engineer – Technical Standards
Airservices Australia
Email: jeffrey.bollard@airservices.gov.au