

Introduction to International Mutual Recognition and Authentication of Professional Engineers in Singapore

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Abstract

This paper presents an overall description on how a person with an engineering degree obtained in Taiwan may practice professionally in Singapore, and particularly how such a person may apply to the Professional Engineers Board Singapore (PEB) to be a legally registered professional engineer in Singapore. As the registered professional engineer is a legal recognition in a specific country, its application processes therefore are subject to the local legislations and regulations. Clearly this also is applicable in Singapore. The situation becomes more complex when candidates are those whose professional engineering degree is obtained from a foreign country. This is because mutual recognition of the degree obtained in two different countries needs to be considered. Moreover, the basis to evaluate professional competency in these countries may be different and candidates must recognize such variations. This paper provides a description of the requirement for PE registration in Singapore by an engineer who has obtained his/her first professional engineering degree in Taiwan.

Keywords: Professional engineering, mutual recognition, PE Board, Engineering degree recognition, Washington Accord, Professional engineer application

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新加坡專業技師認證與國際相互認可介紹

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摘要

本文主要說明在臺灣取得工程學位者，如何在新加坡從事專業工作，並向新加坡專業技師管理局 (PEB) 申請成為新加坡合法註冊的專業技師。由於註冊專業技師在新加坡等特定國家是合法的認可，因此其申請過程會受到當地法規的約束。而當申請人取得的是國外專業工程學位時，情況變得更加複雜。因為需考量兩個國家的學位相互認許。此外，在這些國家評估專業能力的基礎可能不同，申請人必須體認這些差異。本文描述在臺灣取得其第一個專業工程學位的技師，在新加坡註冊專業技師 (PE) 時的相關規定。

關鍵詞：專業工程、相互認可、專業技師管理局、工程學位認可、華盛頓協定、專業技師申請

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Introduction

Since antiquity, engineers have played an important role in the development of a society. This is particularly relevant to civil engineers, who had contributed immensely to infrastructure development, leading to the construction of spectacular structures that modern men in the 21st century still marvel over. Examples of their magnificent achievements include building the magnificent pyramids and Great Sphinx of Giza in Egypt, the Great Wall in China, Taj Mahal in India, etc. When human beings began to change from a nomadic to an agricultural way of living, they recognized the need to ensure a sustainable water supply, leading to the construction of canals for water diversion and irrigation. The many canals that were constructed in Mesopotamia originally by the Sumerians and subsequently the Akkadians, Babylonians, Assyrians, Persians, etc. testify to the ingenuity of those hydraulic engineers of old. The still-functioning Dujianyan irrigation scheme (都江堰) that was designed and constructed by Li Bing (李冰) during the Warring States period (戰國時代) around 256 BC is a classic example of a great irrigation endeavor undertaken by engineers.

With the onset of the industrial revolution in Europe in the 17th century with the invention of the first steam engine in 1712, the importance of mechanical engineering became increasingly more relevant. This translates into the other phases of industrial revolution, with the use of electric power, automation, robotics, IT systems, eventually leading to the present development that involves smart factories, internet-of-things, artificial intelligence, big data, etc. Pesticides and inorganic fertilizers in agriculture were used consistently to ensure reliable yields. In more recent times, knowledge of DNA and genetically modified plants and animals have also been introduced. Ignoring an individual's opinion on the pros and cons of some of these developments, engineers are inevitably involved. From early civil engineering, the other branches of engineering including mechanical, chemical, electrical, electronic, biological, etc. come to the limelight in more recent times.

Together with the progress of the industrial revolution, globalization now has become a reality. Unlike eons ago, movement of human beings is no longer restricted today. In ancient days, the work of an engineer was confined to a certain location. For example, an Egyptian engineer was highly unlikely to be working in Mesopotamia or Anatolia. Today, this lethargy or absence of mobility can no longer be taken for granted; in fact, the opposite probably is the norm. There is absolutely no reason why an engineer in a certain country cannot move and work in another, or vice-versa. To this end, an important question arises pertaining to the recognition of the education background earned in one country by another. Using the example of a Taiwanese engineer who obtains his/her academic qualification in the Taiwanese university, an important

question arises pertaining to whether such a degree is recognized in Singapore. Moreover, can the experience gained in the Taiwanese engineering environment together with the degree earned there be used for the application for the professional engineer (PE) registration? This paper attempts to provide a synopsis relating to this question, particularly answering the question of whether a Taiwanese engineer with exclusive local educational background and experience can work and apply for PE registration in Singapore. Examples of Taiwanese engineers working successfully in Singapore professionally are numerous. A well-known example is Er. Mr. Bailey Wang, who was a partner with KTP Consultants Pte Ltd. Additionally, a Taiwanese Rail Quality Control engineer Mr. Guan Sheng Liu (劉觀生) had worked with T.Y. Lin International (S) as a specialist on the Kim Chuan underground Depot project.

Qualification Requirements

Matters pertaining to PE registration in Singapore is governed by the PE Board (PEB) of Singapore. Recognition of foreign academic degrees by the PEB has undergone many changes over the years. However, with the introduction of the Washington Accord initiated in the United Kingdom with six original signatories, namely, Australia, Canada, Ireland, New Zealand, United Kingdom (U.K.) and United States of America (U.S.A.) in 1989, international recognition of foreign degrees within the member countries has become more straight-forward. With Singapore and Taiwan (technically called Chinese Taipei) joining the Accord in 2006 and 2007, respectively, recognition of Taiwanese degrees for the purpose of PE registration in Singapore now is very simple. Since Singapore and Taiwan are represented, respectively, by the Institution of Engineers, Singapore (IES) and Institute of Engineering Education Taiwan (IEET), Taiwanese degrees that are obtained from universities accredited by IEET are automatically recognized by Singapore (Ministry of National Development, 2009).

Guidelines for Registration as a Professional Engineer in Singapore

After satisfying the academic requirement stated by the Professional Engineers Board of Singapore, i.e., with the possession of a relevant engineering degree in prescribed branches of engineering, whether it be civil engineering, mechanical engineering, electrical engineering, or chemical engineering accredited by IEET, a person can proceed to submit his application for registration as a professional engineer

with PEB in any one of the prescribed branches of engineering. Additionally, the following requirements may also apply:

- (a) The applicant has sat and passed the oral examination or the following written examinations:
 - (i) Fundamentals of Engineering Examination (FEE)
 - (ii) Practice of Professional Engineering Examination (PPE)

If an applicant chooses to sit for the oral examination rather than taking the above two written examinations, he/she is subject to the following requirements that came into effect from 18 January 2017 as follows:

1. if the person was previously registered under the Act as a professional engineer or is an experienced applicant,
2. if the person has not applied to sit for any of the written examinations, and
3. where applicable, a period of 12 months has elapsed from the date of the last unsuccessful application to sit for the oral examination.

The definitions of an experienced applicant are as follows:

1. before 1 December 2005, obtained a qualification specified in Part I or III, Division II, III or IV of Part IV or Division II of Part V of the Schedule to the Professional Engineers (Approved Qualifications) Notification 2009; and
 2. has not less than 25 years of such practical experience in professional engineering work as may be acceptable to the Board, of which at least 10 years must be obtained in Singapore.
- (b) After obtaining the approved practical qualifications, the applicant still must acquire at least four years of practical experience of such nature and duration as prescribed by the Board.

A payment of fees is needed for the application: an application to sit for the oral examination (payment of a fee of SGD450), will be processed together with the application for registration as a professional engineer (payment of a fee of SGD300). The oral examination will be conducted before the professional interview for registration in a single session where applicable.

The following information also is relevant for the application:

- An application for registration as a professional engineer shall be made within five years of passing the oral examination or Practice of Professional Engineering Examination. There are no restrictions based on age, citizenship or residency status, and no requirement on membership of any professional body.

- An applicant may submit an application to PEB complete with a report of postgraduate engineering experience and a fee of \$300. For application details, refer to Annex A, Ministry of National Development (2022).
- Subject to meeting application requirements, an applicant will be required to attend a professional interview conducted by PEB. For details of interview, refer to Annex B, Ministry of National Development (2022). If successful, the applicant will be accepted for registration as a professional engineer.

Finally, the details of the application of registration as a Professional Engineer in Singapore may be found in Ministry of National Development (2022).

Summary

The hurdle to become a registered Professional Engineer in Singapore is the same for both local and foreign engineers. There is no restriction for foreign engineers working in Singapore either with an Employment Pass, which is linked to salary level; or an S-Pass, which is based on the available quota of a company. The Employment Pass (EP) allows foreign professionals, managers and executives to work in Singapore. Candidates need to earn at least S\$5,000 a month.¹ S-Pass (SP) allows mid-level skilled staff to work in Singapore. Candidates need to earn at least S\$3,000 a month.² Whether one is granted an Employment Pass or S-Pass is under the jurisdiction of the Ministry of Manpower, Singapore. Moreover, the guidelines for approving an EP or SP can and do change occasionally. It must be stated that Professional Engineer certification is not a requirement for the application of either of these passes although they are needed for one to legally work in Singapore as a foreign person.

Finally, as Singapore generally is short of engineering and technical personnel, a person with a qualified degree or diploma can apply for EP or SP accordingly. The difficulty, if any, for most foreigners working in Singapore likely is the cost of living. However, the salary level generally is high enough for a person to get by in the initial years of working in the country. His/her living condition likely will improve once he/she establishes himself/herself in Singapore. Moreover, there is no difficulty for Taiwanese working in Singapore as the work environment often allows Mandarin/Chinese dialects (Hokkien) for communications. However, a good command of the English language is necessary as official documents and presentations must be in English. There are many Professional Engineers in Singapore who obtained their Bachelor degree from universities in Taiwan. This shows that there is no significant barrier for Taiwanese engineering graduates working in Singapore.

¹ <https://www.mom.gov.sg/passes-and-permits/employment-pass>.

² <https://www.mom.gov.sg/passes-and-permits/s-pass>

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