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2005 Manpower Survey Report  
Building and Civil Engineering Industry

**Building and Civil Engineering  
Training Board**

**Vocational Training Council**

# **Executive Summary of the 2005 Manpower Survey Report of the Building and Civil Engineering Industry**

## **Introduction**

The Building and Civil Engineering Training Board conducted a survey in March 2005 to collect information on the manpower structure and training requirements by principal jobs in construction and related disciplines of the building and civil engineering industry.

## **Scope of the Survey**

2. The survey covered a total of 18 598 construction sites, offices, firms and institutions in the following 9 branches of the building and civil engineering industry:

- Branch 1 - all active building construction sites in the public and private sectors (795 sites as recorded by the Census & Statistics Department, C & SD);
- Branch 2 - all active civil engineering and other construction sites in the public and private sectors (413 sites as recorded by the C & SD);
- Branch 3 - new construction works contractors including site investigation, site formation, foundation works and erection works recorded under HSICs 511, 521 and 529 (2 675 establishments);
- Branch 4 - decoration, repair and maintenance contractors recorded under HSIC 531 (7 431 establishments);
- Branch 5 - special trade works contractors [excluding electrical and mechanical fitting and gas fitting, installation and maintenance] recorded under HSICs 541, 542, 5611, 5612, 5618 and 591 (5 743 establishments);
- Branch 6 - architectural, surveying and project engineering services firms related to construction activities under HSIC 8334 [excluding sub-branch HSIC 8334-04: building services engineering] (1 460 establishments);
- Branch 7 - major private estate developers (36 establishments);
- Branch 8 - relevant teaching departments and estate offices of training/ educational institutions, and utility companies undertaking construction work or employing construction workers at the time of the survey (31 departments/offices); and

Branch 9 - government departments undertaking construction work or employing construction workers at the time of the survey (14 departments).

HSIC : Hong Kong Standard Classification

In view of the limited resources, a stratified random sampling method was adopted to select 1 141 samples out of a total of 17 309 establishments in Branches 3 to 6. Together with 1 208 active sites in Branches 1 and 2 and 81 establishments in Branches 7, 8 and 9, a total of 2 430 sites/establishments were visited.

### **Number of Workers Employed**

3. The Survey revealed that in March 2005, 106 702 workers were employed in principal jobs of construction and related disciplines and 38 865 persons of other disciplines in the building and civil engineering industry. The distribution of workers of construction and related disciplines by job level by branch is summarised in the table below and details in **Appendices 1 and 2**.

#### **Manpower Distribution by 9 Branches and 4 Skills Level**

Branch \ Job Level	1	2	3	4	5	6	7	8	9	Total
Professional/ Technologist	830	1 219	1 812	1 274	419	4 045	177	787	3 428	<b>13 991</b>
Technician	2 613	2 355	3 114	6 008	3 070	4 338	77	1 119	6 989	<b>29 683</b>
Skilled & Semi-Skilled Worker	21 966	7 885	1 422	7 140	7 430	24	-	447	404	<b>46 718</b>
General Worker	5 975	5 762	1 311	1 377	496	104	-	86	1 199	<b>16 310</b>
<b>Total</b>	<b>31 384</b>	<b>17 221</b>	<b>7 659</b>	<b>15 799</b>	<b>11 415</b>	<b>8 511</b>	<b>254</b>	<b>2 439</b>	<b>12 020</b>	<b>106 702</b>

### **Number of Vacancies and Trainees**

4. Employers reported a total of 244 vacancies and 1 040 trainees, representing about 0.23% and 1.0% respectively of the workforce at the time of the survey. A summary of the vacancies by job level is as below:

Job Level	Number of Vacancies	Number of Trainees
Professional/Technologist	54	723
Technician	137	261
Skilled and Semi-Skilled Worker	45	55
General Worker	8	1
<b>Total</b>	<b>244</b>	<b>1 040</b>

### **Future Manpower Training Requirement**

5. Based on data collected in the present and past manpower surveys, estimated expenditure on construction works in coming years, the wastage rates and other considerations affecting the industry, the Training Board forecasts the industry's likely annual training demand from 2006 to 2011 as below:

<u>Job Level</u>	<u>Average Annual Projected Training Requirement</u>
Professional/Technologist	450 - 500
Technician	970 - 1 110
Skilled and Semi-Skilled Worker	1 590 - 1 940

# SECTION I

## INTRODUCTION

### **The Training Board**

1.1 The Building and Civil Engineering Training Board of the Vocational Training Council is required by its terms of reference to determine the manpower and training needs of the building and civil engineering industry and to make recommendations on measures to meet such needs. The Training Board comprises members nominated by major trade associations, trade unions, professional institutions, education/training organizations and relevant government departments. The Training Board's membership and terms of reference are listed in **Appendices 6 and 7** respectively.

### **The Survey**

1.2 In pursuance of its terms of reference, the Training Board conducted a survey in March 2005 to collect up-to-date manpower information by principal job in the building and civil engineering industry with a view to assessing the industry's technical manpower structure and training requirements. The fieldwork of the survey was carried out from 21<sup>st</sup> February to 31<sup>st</sup> May 2005 with the assistance of the Census and Statistics Department (C&SD).

1.3 The following information was collected from the survey:

- (i) The number of employees at the time of the survey,
- (ii) The number of existing vacancies,
- (iii) The number of trainees, and
- (iv) The distribution of employees by monthly income range.

### **Scope of the Survey**

1.4 The scope of the survey covered a total of 18 598 construction sites, offices, firms and institutions in the following branches of the building and civil engineering industry as recorded by C&SD (based on 4<sup>th</sup> quarters of 2004 for Branches 1 & 2 and 3<sup>rd</sup> quarter of 2004 for Branches 3-6):

- Branch 1 - all active building construction sites in the public and private sectors, (795 sites as recorded by the C & SD);

- Branch 2 - all active civil engineering and other construction sites in the public and private sectors (413 sites as recorded by the C & SD);
- Branch 3 - new construction works contractors including site investigation, site formation, foundation works and erection works recorded under HSICs 511, 521 and 529 (2 675 establishments);
- Branch 4 - decoration, repair and maintenance contractors, recorded under HSIC 531 (7 431 establishments);
- Branch 5 - special trade works contractors, [excluding electrical and mechanical fitting and gas fitting, installation & maintenance] recorded under HSICs 541-542, 5611, 5612, 5618 and 591 (5 743 establishments);
- Branch 6 - architectural, surveying and project engineering services firms related to construction activities under HSIC 8334 [excluding HSIC 833404 building services engineering] (1 460 establishments);
- Branch 7 - private estates developers (36 establishments);
- Branch 8 - relevant teaching departments and estate offices of training/educational institutions, and utility companies undertaking construction work or employing construction workers at the time of the survey (31 departments/offices); and
- Branch 9 - government departments undertaking construction work or employing construction workers at the time of the survey (14 departments).

HSIC : Hong Kong Standard Classification.

1.5 In view of the limited resources available for the fieldwork, a stratified random sampling method was adopted in Branches 3 to 6 to select 1 141 samples out of a total of 17 309 establishments. Together with the 1 208 sites in Branches 1 and 2 and the 81 establishments in Branches 7, 8 and 9, a total of 2 430 sites/establishments were visited in the fieldwork period of the survey.

1.6 The survey covered all technical persons in construction and related disciplines employed by main contractors, sub-contractors as well as self-employed persons in construction sites and offices, matched to the 101 principal jobs as listed in **Appendix 10**. It excluded workers employed in Hong Kong but posted outside Hong Kong for more than six months during the twelve-month period prior to the survey. To avoid double counting, the electrical and mechanical (E & M) contracting and servicing sectors of the construction industry were separately covered by another manpower survey simultaneously conducted in March 2005 by the Electrical and Mechanical Services Training Board (EM TB). Similarly, the estate surveyor and surveying technician (estate) jobs were also covered separately by the Real Estate Services Training Board (RE TB).

### **Publicity**

1.7 Prior publicity was given to the local press. Relevant employers' associations and professional institutions were also requested to publicize the survey among their members.

### **Method of the Survey**

1.8 Two weeks before the fieldwork, a survey questionnaire (**Appendix 8**) together with an explanatory note (**Appendix 9**) and a list of principal jobs with job descriptions for the building & civil engineering industry (**Appendix 10**) was sent to each employer to be interviewed for completion. Employers were requested to provide information regarding the manpower situation in their establishments at the time of the survey.

1.9 To avoid double counting site workers who might work in different sites during the survey period, a reference date for all sites was fixed to be 7<sup>th</sup> March 2005 which was a fine day without rain. Only those site workers on the 7<sup>th</sup> March 2005 log sheet and properly matched with the jobs in the list of principal jobs were included in the survey.

1.10 During the fieldwork period, officers of the C & SD visited every site and employer by appointment to collect the completed questionnaires and, when requested, assisted employers to complete the questionnaires.

1.11 After the fieldwork, the completed questionnaires were scrutinized and, where necessary, verified with the respondents before being processed by the C & SD. The survey data in Branches 3 to 6 were then scaled up by appropriate factors to reflect the overall manpower situation of the branches.

## **Survey Response**

1.12 Of the 2 430 sites and establishments surveyed, 1 576 supplied the required information and 7 refused to do so. Among the remaining 847 sites/establishments, 433 sites had returned without persons engaged, 65 establishments employed no manpower in the list of principal jobs, 44 sites suspended work, 33 closed, 21 not engaged in the specific trade and the remaining 251 establishments either moved, vacant, non-contact, wrong address or door-locked. The effective response rate was 89.4%.

## **The Report**

1.13 The Training Board endorsed the survey findings and published the 2005 manpower survey statistical report of the building and civil engineering industry on the website of the Vocational Training Council in October 2005 for public information.

1.14 This report presents the findings of the survey (**Appendices 1 to 3**) and also the Training Board's forecast manpower needs of the building and civil engineering industry for 2006 to 2011 as well as the Training Board's recommendations on measures to meet these needs. In this report, both the terms 'employees' and 'workers' refer to personnel engaged (or self-employed) in the principal jobs of construction and related disciplines at the time of the survey; whereas the term 'trainees' includes both trainees under any form of training and apprentices. The report is also mounted on the website of the Vocational Training Council in the Building and Civil Engineering Training Board page for public reference.



## SECTION II

### SUMMARY OF SURVEY FINDINGS

#### **Total Number Employed**

(Appendices 1 and 2)

2.1 The survey revealed that in March 2005, 106 702 persons (excluding 1 040 trainees) were employed in principal jobs of construction and related disciplines and 38 865 persons of other disciplines in the building and civil engineering industry; i.e. the industry employed a total of 146 607 persons at the time of the survey. The distribution of employees of construction and related disciplines by job level is given in **Appendices 1 and 2** and summarized below in 3 categories of employment - directly by main contractors, by sub-contractors, and self-employed:

Table 2.1 Distribution of Employees of Construction and Related Disciplines by Job Level

Job Level	Number of Employees				Percentage of Total Number Employed
	Direct	Sub-contractor	Self-employed	Sub-total	
Professional/Technologist	13 813	174	4	<b>13 991</b>	13.11%
Technician	28 888	792	3	<b>29 683</b>	27.82%
Skilled and Semi-skilled Worker	21 815	24 658	245	<b>46 718</b>	43.78%
General Worker	8 809	7 437	64	<b>16 310</b>	15.29%
<b>Total</b>	<b>73 325</b>	<b>33 061</b>	<b>316</b>	<b>106 702</b>	<b>100.00%</b>

2.2 Of these 106 702 employees, 73 325 (68.7%) were directly employed by main contractors, 33 061 (31.0%) by sub-contractors and 316 (0.3%) were self-employed.

2.3 A new job title, “building services and engineering supervisor” at the technician level (code 219), was added during data processing to cover workers engaged mainly in decoration/renovation work and taking an overseeing position.

#### **Distribution of Employees of Construction and Related Disciplines by Branch**

2.4 The distribution of employees by principal jobs in the 9 branches of the industry is shown in **Appendix 2** and summarised below:

**Table 2.2 : Manpower Distribution by 9 Branch by Skill Levels**

**2.2**

<b>Job Title</b>	<b>Br. 1 Bldg Sites</b>	<b>Br. 2 Civ Eng Sites</b>	<b>Br. 3 New Cons Contr</b>	<b>Br. 4 Décor Rep Mtn Contr</b>	<b>Br. 5 Spec Trade Contr</b>	<b>Br. 6 Arch, Eng. Surv Serv</b>	<b>Br. 7 Major Est Devlprs</b>	<b>Br. 8 Tert. Inst. Utilities</b>	<b>Br. 9 Govt Dept ( )</b>	<b>Total</b>
<b><i>PROFESSIONAL/TECHNOLOGIST</i></b>										
<b>Sub-total</b>	<b>830</b>	<b>1 219</b>	<b>1 812</b>	<b>1 274</b>	<b>419</b>	<b>4 045</b>	<b>177</b>	<b>787</b>	<b>3 428</b>	<b>13 991</b>
<b><i>TECHNICIAN</i></b>										
<b>Sub-total</b>	<b>2 613</b>	<b>2 355</b>	<b>3 114</b>	<b>6 008</b>	<b>3 070</b>	<b>4 338</b>	<b>77</b>	<b>1 119</b>	<b>6 989</b>	<b>29 683</b>
<b><i>SKILLED AND SEMI-SKILLED WORKERS</i></b>										
<b>Sub-total</b>	<b>21 966</b>	<b>7 885</b>	<b>1 422</b>	<b>7 140</b>	<b>7 430</b>	<b>24</b>	<b>-</b>	<b>447</b>	<b>404</b>	<b>46 718</b>
<b><i>GENERAL WORKERS</i></b>										
<b>Sub-total</b>	<b>5 975</b>	<b>5 762</b>	<b>1 311</b>	<b>1 377</b>	<b>496</b>	<b>104</b>	<b>-</b>	<b>86</b>	<b>1 199</b>	<b>16 310</b>
<b>GRAND TOTAL</b>	<b>31 384</b>	<b>17 221</b>	<b>7 659</b>	<b>15 799</b>	<b>11 415</b>	<b>8 511</b>	<b>254</b>	<b>2 439</b>	<b>12 020</b>	<b>106 702</b>

2.5 Among the 106 702 employees, 31 384 (29.4%) worked in the active building sites and 17 221 (16.1%) in active civil engineering sites.

### **Number of Trainees of Construction and Related Disciplines**

2.6 Employers reported a total of 1 040 trainees at the time of the survey, representing about 1.0% of the total workforce in construction and related disciplines. A summary of the trainees by job level is shown below with full distribution by principal job in **Appendix 1:**

Table 2.3 Distribution of Trainees of Construction and Related Disciplines by Job Level

Job Level	Number of Trainees	No. of Workers Employed	Trainees as Percentage of Workers Employed (at the Same Job Level)
Professional/Technologist	723	13 991	5.2%
Technician	261	29 683	0.9%
Skilled and Semi-skilled Worker	55	46 718	0.1%
General Worker	1	16 310	-
<b>Total</b>	<b>1 040</b>	<b>106 702</b>	<b>1.0%</b>

2.7 There were 723 trainees at the professional/technologist level (5.2%), 261 technician trainees (0.9%) and only 55 trainees at the skilled and semi-skilled worker level (0.1%).

### **Number of Vacancies**

2.8 Employers reported a total of 244 vacancies of construction and related disciplines at the time of the survey, representing only 0.23% of the workforce. A summary of the vacancies by job level is shown below with full distribution by principal job in **Appendix 1:**

Table 2.4 Distribution of Job Vacancies by Job Level

Job Level	Number of Vacancies	No. of Workers Employed	Vacancies as Percentage of Workers Employed (at the Same Job Level)
Professional/Technologist	54	13 991	0.39%
Technician	137	29 683	0.46%
Skilled and Semi-skilled Worker	45	46 718	0.10%
General Worker	8	16 310	0.05%
<b>Total</b>	<b>244</b>	<b>106 702</b>	<b>0.23%</b>

**Distribution of Employees by Monthly Income Range**

2.9 The distribution of employees by the monthly income range at each job level is shown in **Appendix 3**.

## SECTION III

### OBSERVATIONS AND CONCLUSIONS

#### **General**

3.1 The Training Board has carefully examined the survey findings and is of the opinion that the data collected generally reflect the manpower situation of the building and civil engineering industry at the time of the survey. It is also noted that the vacancy rates at all levels and the number of the trainees at the skilled worker and the technician levels were exceptionally low.

#### **Analysis on Manpower Needs**

3.2 In order to project the future manpower needs of the industry, the following major future developments or trends of the industry should be taken into consideration:

#### **Trend of Public Works Spending**

- 3.3
- (i) Since the reunification in 1997, the Government have spent some \$225 billion on the Capital Works Programme or an annual average of \$28 billion.
  - (ii) The Government has assured its commitment for infrastructure projects necessary to sustain the economic development and long-term competitiveness of Hong Kong. Examples include the Hong Kong-Zhuhai-Macao Bridge and connecting roads and the Kai Tak Development.
  - (iii) In the medium term, the Government has allowed provision for an average annual public works expenditure of \$29 billion.

Thus there may still be a moderate demand for all levels of manpower by the industry for the next few years.

#### **Public Housing**

- 3.4
- (i) To meet the housing needs of low income families, the Housing Authority will continue to implement the massive public housing construction programme. The Authority will complete the construction of some 19,600 public housing units in 2005/06. It will produce a total of about 83,700 public housing units for the five years between 2005/06 and 2009/10. The Authority's construction expenditure amounts to some \$5,432M in 2005/06.

- (ii) The Authority is also planning to implement a Total Maintenance Scheme to enhance its public housing maintenance service in 2006. The Scheme would entail a 10% increase in maintenance works, with an increase of about 900 to 1,000 employment opportunities for construction workers. The Housing Authority's maintenance expenditure for the next five years up to 2009/10 is around \$2 billion per annum.

### **Private Housing**

- 3.5
- (i) As regards land supply for private housing, the Government resumed the land sale by the Application List System from January 2004. The 2005/06 Application List comprises a total of 35 sites, including 29 residential sites and 6 commercial/business sites. The residential sites have a total area of about 22 hectares. Ten of the sites are located on Hong Kong Island, seven in Kowloon and twelve in the New Territories. As of now, three residential sites have been sold.
  - (ii) To ensure that there would not be any adverse impact on the property market, the Government will continue to liaise closely with the two railway corporations through the established mechanism to co-ordinate the timetable for the disposal of railway-property developments.
  - (iii) According to the figures published by the Rating and Valuation Department early this year, it was estimated that some 21,200 and 17,400 private residential units will be produced in 2005 and 2006 respectively based on the data available at that time. Comparing with 2002 to 2004 (some 26,000 – 31,000 units), this estimated quantity of residential production is rather moderate, and thus may not generate a substantial increase in the demand for skilled and semi-skilled workers.

### **Renovation, Renewal and Building Maintenance**

- 3.6
- (i) To speed up urban renewal and building maintenance, the Government has announced in the 2005/06 budget speech that it has obtained the support of the Hong Kong Housing Society to launch a \$3 billion Building Management and Maintenance Scheme. The scheme will provide “one-stop” services to owners of old buildings to help them improve the overall condition of their buildings and living environment. An estimated 800 buildings will benefit from the scheme each year. In addition, a total of \$830 million has been earmarked to the Buildings Department over a period of five years starting from 2006-07, for the purpose of removing over 180 000 unauthorised structures and improving the safety and external appearance of old buildings. These initiatives will create job opportunities for the building construction and decorating sectors and help ease the unemployment situation of low-skilled workers. Thus, there should be a moderate increasing demand for skill and semi-skilled workers.

- (ii) To provide comprehensive one-stop assistance to owners to upkeep their buildings, the Housing Authority has solicited the support and agreement of the Hong Kong Housing Society (HKHS) to roll out a ten-year building management and maintenance scheme. The results of the public consultation on building management and maintenance also reveal a broad community preference for putting in place some form of mandatory requirements on owners as an effective measure to ensure proper building management and maintenance. In this connection, the introduction of mandatory building inspection is believed to be a practicable and effective long-term solution to arrest building decay.
- (iii) Apart from promoting proper building management and maintenance, the Government is committed to regenerating older urban areas. The Urban Renewal Authority (URA) has rolled out steadily over the past three years an enhanced urban renewal programme comprising redevelopment, rehabilitation, preservation and revitalization covering over 300 buildings.
- (iv) Other than the URA's continued efforts in its target areas, the private sector's involvement in urban renewal has been and will remain an important locomotive for improvement of the older urban fabric. Over the last ten years, the private sector has initiated about 1,000 redevelopments.

### **Infrastructural Development/Projects**

- 3.7
- (i) With the upturn in our economy, an early reactivation of the plan to re-provision the Central Government Offices and the Legislative Council Building on the Tamar site, will help create employment opportunities for the construction industry.
  - (ii) To meet the demand for public transport, the government will be completing various major infrastructural projects. The construction of the KCRC Lok Ma Chau Spur Line is progressing well and is expected to be commissioned in 2007 as scheduled. Route 8, being constructed, will be completed in two phases in 2007 and 2008.
  - (iii) There will also be a number of large railway projects proposed for the next ten years including the KCRC South Kowloon Line, construction of which has just started and will be completed in 2009. The government is also actively planning for the Sha Tin to Central Link and the West Hong Kong Island Line, and assessing the feasibility of the KCRC Northern Link and the MTRC South Hong Kong Island Line.
  - (iv) The Hong Kong-Shenzhen Western Corridor will be commissioned next year when the control point at Shekou is completed. The Government is also studying the KCRC's feasibility report on the Guangzhou-Shenzhen-Hong Kong Express Rail Link.

- (v) In the next two years, infrastructural projects with a total value of \$6.5 billion will be completed at Hong Kong International Airport at Chek Lap Kok. These include a second passenger terminal building and the Asia World-Expo complex.
- (vi) In addition, other major projects in the pipeline including the improvement to Tuen Mun Road, HK-Zhuhai-Macau Bridge, Central-Wanchai Bypass, supporting infrastructure for the Kowloon Southern Link and the Shatin-Central Link, drainage tunnels, Kai Tak Development, etc.
- (vii) The development of an integrated cultural district in West Kowloon is under consideration by the Government after a six-month public consultation.
- (viii) There is also a trend for more and better environmental protection and improvement including landscaping. It is expected that more expenditure will be spent by both the public and private sectors on works for this purpose.

### **Mainland China & Macau**

- 3.8
- (i) The Government has been facilitating the entry of Hong Kong construction professionals into the Mainland market in the context of CEPA, including major undertakings such as the Beijing Olympics in 2008 and the Shanghai Expo and Guangzhou Asian Games in 2010.
  - (ii) The Government has been facilitating discussions between local professional bodies and mainland authorities on mutual recognition of professional qualification between Mainland and Hong Kong. Mutual recognition agreements for estate surveyors, architects, structural engineers, quantity surveyors and planners have been signed. Moreover, Hong Kong residents may now take part in 18 mainland professional qualification examinations related to the construction and engineering services under CEPA II. Therefore, more construction professionals will provide services and eventually take part in the construction projects in the Mainland.
  - (iii) Similarly, there are strong demand for the local construction workers to participate in construction projects in Macau involving construction of hotels and entertainment facilities.
  - (iv) These external factors would provide job opportunities for the existing local professionals/technologists but may not create much additional demand in terms of manpower.



### **Future Manpower Training Demand**

3.9 The Training Board has estimated the wastage rates of manpower to be 3% at the three job levels - professional/technologist, technician, and skilled and semi-skilled worker. Those leaving the industry are due to retirement, death, change of jobs or deployment outside Hong Kong.

3.10 Based on the manpower data collected from the past and present surveys, estimated expenditure on building and civil engineering project works in coming years, the wastage rates, additional demand for specific workers, unemployment rates at different job levels (**Appendix 4**) and the business outlook, the Training Board forecasts the average annual manpower training requirement by job level from 2006 to 2011 as follows:

Projected Average Annual Manpower Training  
Requirement (from 2006 to 2011)

Job Level	Projected Annual Training Requirement
Professional/technologist	450 – 500
Technician	970 – 1 110
Skilled/Semi-skilled Worker	1 590 – 1 940

3.11 The Training Board will conduct another manpower survey in 2007 to assess and update the manpower requirement of the construction industry.

## SECTION IV

### RECOMMENDATIONS

4.1 While the Hong Kong economy recovered steadily in the past two years after the SARS outbreak with the employment rates in some sectors going up steadily, the construction industry still remained in the doldrums. The economy of Hong Kong is still undergoing structural changes with a slow pace. As a result, the building activities of residential and commercial properties in both the private and the public sectors remain sluggish. However, there have been signs of recovery as the private property developers are actively bidding for land in order to strengthen their supply of residential flats as well as negotiating with the Government for the change of usage for some of their lands for residential purpose. With the Government continuing to launch medium and long term infra-structural projects (such as highways, new railway lines, bridge to Macau and Zhuhai, etc.), this will help maintain the level of construction activities in the civil engineering sector for providing continuous employment of construction workers.

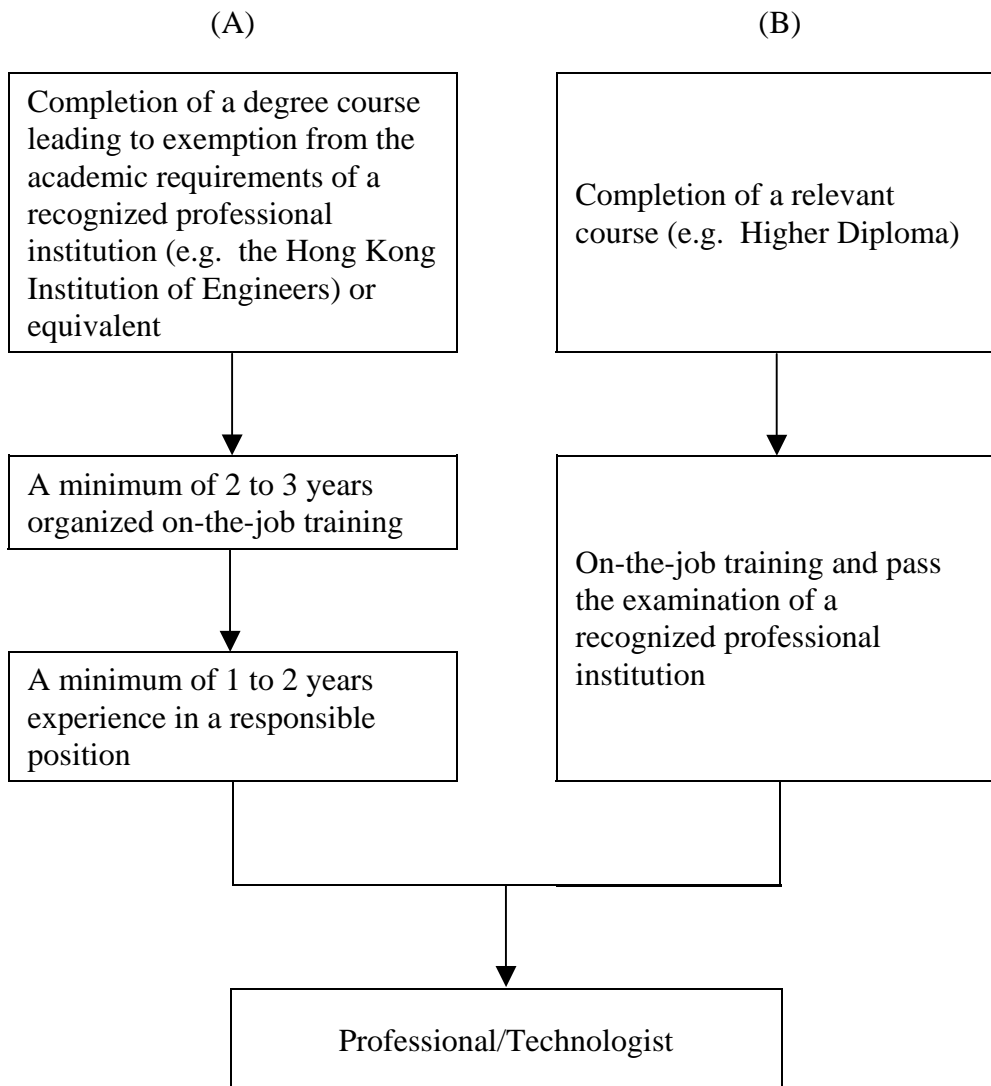
4.2 To assure an adequate supply of competently trained technical manpower to sustain growth and development, the Training Board urges employers to improve their training schemes at all four job levels. Currently, the industry should also provide continuous up-grading and updating technical, safety and legality training to their serving workers to meet the ever increasing stringent requirements on quality standards, quality assurance/public liability and safety at work. The Training Board recommends that the industry as a whole should adopt organized manpower training programs at a scale recommended in paragraph 3.10.

#### **Training of Professionals/Technologists**

4.3 A professional/technologist is a person having the qualifications and experience equivalent to those required for corporate membership of a recognized professional institution in Hong Kong (e.g. the Hong Kong Institution of Engineers, HKIE). The person should be competent in analysing and solving a wide range of technical problems, and to apply his knowledge and experience to initiate practical development. Furthermore, he should be able to assume personal responsibility for the development and application of engineering principles, exercise original thought and judgement, follow up projects, apply the latest techniques and supervise and develop his subordinates.

4.4 Professionals/technologists play an important role in bringing about improvement in management and technological innovations. In the construction industry, they are normally trained through completion of a relevant course in technical education followed by a number of years of practical/on-site training and experience in responsible position. The normal training routes for professionals/technologists are as follows:

Training of Professionals/Technologists



4.5 The following table shows the projected average annual manpower training requirement of professionals/technologists in three major construction disciplines from 2006 to 2011. The projected number of degree graduates of local tertiary institutions in the three major disciplines: architectural, civil/geotechnical/structural/building engineering, and surveying is at **Appendix 5**.

Projected Average Annual Training  
Requirement of 3 Major Disciplines at the  
Professional/Technologist Level (2006 - 2011)

<u>Job Title</u>	<u>No. Employed In March 2005</u>	<u>Projected Annual Training Requirement</u>
<u>Architectural Disciplines</u>		
Architect	1 716	49 – 55
Landscape Architect	219	6 – 10
<b>Total</b>	<b>1 935</b>	<b>55 – 65</b>
<u>Civil/Geotechnical/Structural/Building Engineering Disciplines</u>		
Civil Engineer	3 266	93 – 103
Structural Engineer	1 023	30 – 33
Construction Manager	1 140	43 – 47
Geotechnical Engineer /Geologist	459	13 – 15
Building Services Engineer	1 087	41 – 45
<b>Total</b>	<b>6 975</b>	<b>220 – 243</b>
<u>Surveying Disciplines</u>		
Building/Maintenance Surveyor	612	23 – 25
Land Surveyor	221	7
Quantity Surveyor	2 291	63 – 69
<b>Total</b>	<b>3 124</b>	<b>93 – 101</b>

4.6 There will be an over-supply of local degree graduates in the architectural, civil/geotechnical/structural/environmental engineering and surveying disciplines in the coming three years. However not all graduates will enter into relevant employment in the construction industry. Some will be absorbed by other sectors in the servicing and information technology industries.

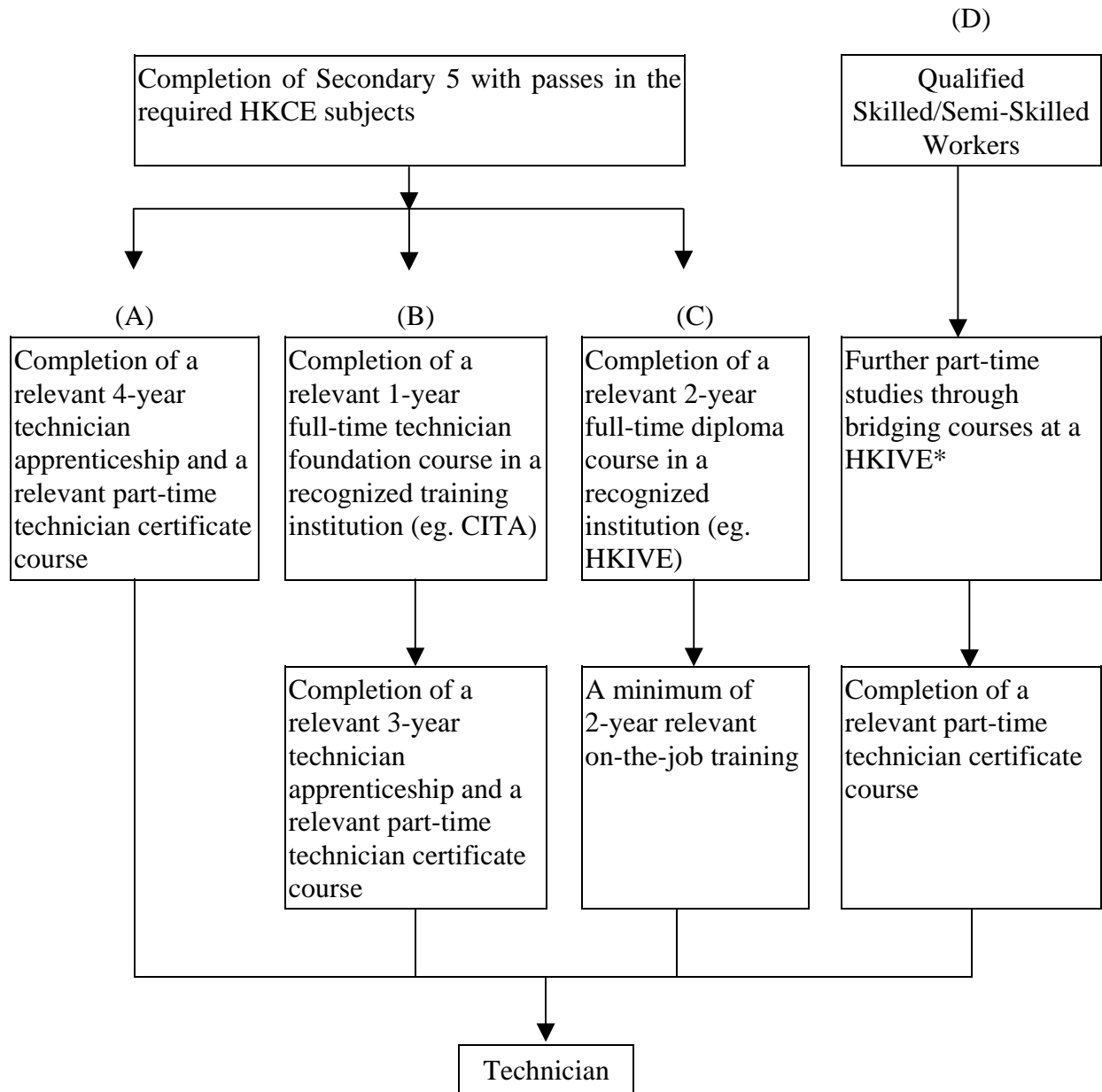
### **Engineering Graduates Training Scheme**

4.7 The Sub-Committee on Engineering Graduate Training Scheme of the Committee on Technologist Training of the Vocational Training Council (VTC) is responsible for administering the Engineering Graduate Training Scheme (EGTS). The EGTS is wholly financed by the government with an objective to bring about more training opportunities for Hong Kong engineering graduates. Employers participating in the EGTS are required to provide up to 18 months practical training of a standard acceptable for Corporate Membership of the Hong Kong Institution of Engineers (HKIE). Employers wishing to participate in the EGTS have to register their training programmes pre-approved by the HKIE under its Scheme 'A' training with the Vocational Training Council. To meet the high cost of training, each trainee being trained under the EGTS is granted a subsidy to be paid through his employer as part of his salary. The subsidy period may comprise partly sandwich and partly post-graduate training up to a maximum of 18 months. The Training Board urges employers to contact the Technologist Training Unit and to join the subsidized scheme to provide formal training opportunities to young graduates.

### **Training of Technicians**

4.8 A technician is one who occupies a position between the professional/technologist and the skilled workers. His education, training and practical experience should enable him to apply proven techniques to solve technical problems. He is expected to carry a measure of technical responsibility, normally under the guidance of a professional/technologist. The usual routes of training technicians are shown as below:

Training of Technicians



\* The Hong Kong Institute of Vocational Education.

4.9 The projected average annual training requirements of technicians by job from 2006 to 2011 are shown below:

<u>Job Title</u>	<u>No. Employed in March 2005</u>	<u>Projected Average Annual Training Requirement</u>
Architectural Technician/ Draughtsman	3 537	99 - 113
Civil/Structural/Geotechnical Engineering Technician	2 939	82 - 94
Clerk of Works/Inspector of Works/ Works Supervisor	4 409	164 - 188
Site Agent/Site Foreman	6 500	181 - 209
Surveying Technician	3 813	121 - 140
Laboratory Technician/ Quality Assurance Technician	729	27 - 31
Building Services/Electrical/ Mechanical Engineering Technician	1 577	59 - 67
Building Services and Engineering Supervisor	3 668	137 - 157
Others	2 511	100 - 111
<b>Total</b>	<b>29 683</b>	<b>970 - 1 110</b>

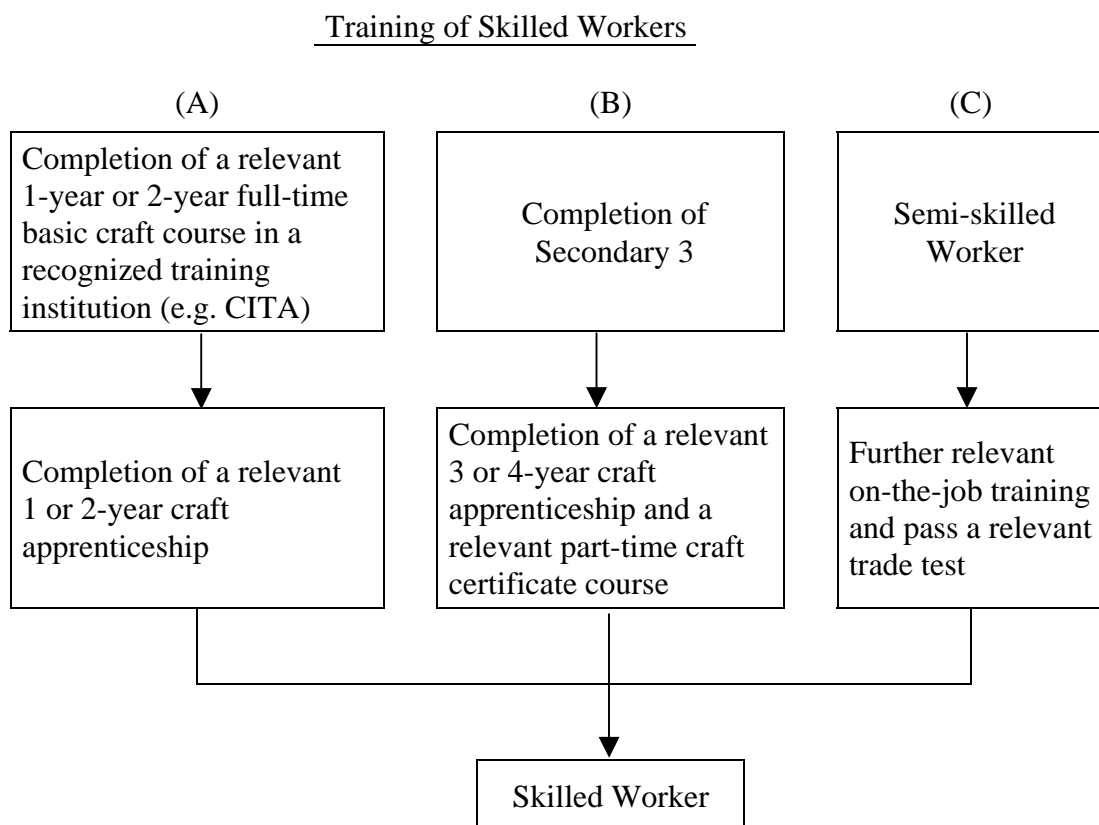
4.10 For construction technician courses, the Hong Kong Institute of Vocational Education (HKIVE) of the Vocational Training Council (VTC) is the major local course provider. It offers Higher Diploma (HD), Higher Certificate (HC)/Diploma (D) and Certificate courses in full-time (FT), part-time-day release (PTDR) and part-time-evening (PTE) modes in building studies, civil/structural engineering, surveying and construction management. Two local universities are also providing HD and Associate Degree (ASc) courses in civil engineering, construction, surveying and related disciplines. (**Appendix 5**).

4.11 It is observed that the projected output of technician graduates would exceed the demand for technicians in the coming three years. The Training Board urges employers to provide more training/educational opportunities and assistance to their junior technicians to enable them to upgrade themselves as competent technicians through continuous learning processes.

## Training of Skilled and Semi-skilled Workers

4.12 In the report, a skilled worker in a particular occupation, trade or craft should be able to apply a range of skills and knowledge relevant to his trade with minimum direction or supervision. He should hold a trade certificate or has equivalent qualification and experience such that he should have adequate technical knowledge, which enables him to acquire new skills to cope with the changing technologies. Some categories of construction skilled workers are required by law to hold relevant licenses issued by appropriate authorities. A semi-skilled worker possesses skill level and knowledge in between that of a skilled worker and a general worker. He is normally required to be guided and supervised by a skilled worker or other supervisory staff in performing his duties. He should possess an intermediate trade test certificate or have equivalent qualification and experience. Semi-skilled worker is not applicable to some trades as some existing legislation only allow a fully qualified worker to carry out the work under such trades.

4.13 Skilled workers in the construction industry are normally trained through the following routes:





4.14 Both the Construction Industry Training Authority (CITA) and the Hong Kong Institute of Vocational Education (HKIVE) are offering construction skilled worker courses in various trades. Employers are encouraged to sponsor their trainees, apprentices and in-service workers to attend relevant courses to update and upgrade their skills and knowledge.

4.15 The projected average annual training requirement for skilled and semi-skilled workers from 2006 to 2011 with the projected local supply of skilled and semi-skilled worker graduates in **Appendix 5** is summarised as follows:

Projected Average Annual Training Requirement  
of Skilled and Semi-skilled Workers (2006 - 2011)

<u>Job Title</u>	<u>No. Employed in March 2005</u>	<u>Projected Annual Training Requirement</u>
Bamboo Scaffolder	1 009	36 - 44
Bar Bender and Fixer	2 389	65 - 79
Carpenter (Formwork)	3 395	92 - 112
Concretor	1 236	33 - 41
Joiner	4 901	132 - 162
Leveller	1 396	63 - 77
Metal Worker	3 157	86 - 105
Painter & Decorator	5 039	136 - 166
Plasterer	4 629	125 - 153
Plumber	2 741	74 - 90
Window Frame Installer	1 418	219 - 267
Others	15 408	529 - 644
<b>Total</b>	<b>46 718</b>	<b>1 590 - 1 940</b>

4.16 For the coming three years (2006-2008), the total projected output of skilled and semi-skilled worker graduates would marginally meet the demand and training providers might need to organize more evening courses to meet the demand for specific trades. Moreover, they have to constantly review and update their outputs to meet the changing training requirement of the construction industry.

## **Training of General Workers**

4.17 A general worker normally performs general cleaning, minor excavation work and other simple duties as directed by a skilled worker, or other supervisory staff. He should possess simple job related skills which may be acquired on-the-job or off-the-job. Although the typical training period for semi-skilled/general workers is below 6 months, the Training Board believes that a well organized, systematic training would be beneficial to both employers and employees. CITA offers full-time induction courses for prospective adult operative and labourer trainees. CITA has also organized some off-the-job safety and skill training for in-service workers sponsored by their employers. Employers are encouraged to update and upgrade their employees whenever they can spare time and resources.

## **Relevant Organizations related to Training for Construction Industry**

### **Provisional Construction Industry Co-ordination Board (PCICB)**

4.18 A Provisional Construction Industry Co-ordination Board (PCICB) was set up in September 2001 to develop a framework for the establishment of a statutory industry co-ordinating body as envisaged by the Construction Industry Review Committee (CIRC) report. It serves as a focal point to co-ordinate efforts in taking forward the CIRC recommendations. As the precursor of a statutory co-ordinating body, PCICB also deliberates on pan-industry issues and serves as a primary channel for the Government to obtain feedback on construction related matters. The Training Board anticipates that its recommendations on skill development will have vast influence in the training of construction workers.

### **Construction Industry Training Authority**

4.19 The Construction Industry Training Authority (CITA) operates four training centres to provide industrial training courses for the industry. Three of the training centres, located in Kowloon Bay, Kwai Chung and Sheung Shui respectively are dedicated to the training of construction technicians, craftsmen and operators. The fourth training centre at Aberdeen, the Management Training and Trade Testing Centre focuses on management and technology courses which have increasing demand from in-service workers and it also facilitates the organization of trade tests and intermediate trade tests for skilled and semi-skilled workers and operators.

4.20 CITA offers about 58,000 training places in the 2005/06 training year starting from September 2005. Besides providing about 1,900 places for 35 different one-year and two-year full-time training courses, ranging from basic craft trainee to construction supervisor/technician levels, CITA also conducts part-time refresher, up-grading, trade test-related, safety and management-related, and commissioned courses. In the 2005/06 training year, a total of 56,180 part-time places are offered to meet specific needs of construction personnel.

4.21 To encourage contractors to take the lead in employing CITA graduates on a monthly basis and retain CITA graduates in the industry, the Authority has implemented the Employers Subsidy Scheme (ESS) since September 1998. Qualified employers who employ graduates of approved courses on monthly basis under an apprenticeship contract could apply to the Authority for a subsidy of HK\$1,800 per month per apprentice employed for 6 months or 12 months.

### **The Employees Retraining Board**

4.22 The Employees Retraining Board (ERB) administers a wide range of full-time and part-time/evening courses to help the unemployed and eligible workers adjust to changes in the labour market and acquire new or enhanced skills to find alternative employment. Though the priority target group is unemployed and eligible workers aged 30 or above with no more than lower secondary education, younger unemployed persons and those with higher secondary education may also be enrolled in the retraining programme should they encounter employment difficulties. Persons in employment who wish to acquire basic general skills such as computer application may also apply for part-time or evening retraining courses.

### **Skill Upgrading Scheme (SUS)**

4.23 The Skill Upgrading Scheme is a Government funded scheme to upgrade the skill level of the low educated workers. The captioned scheme operated by the Education and Manpower Bureau has been conducting courses related to building and construction industry. A working group on Building Maintenance and Decoration has been set up under the SUS to look into the design of the training courses related to the industry (website: [www.emb.gov.hk/sus](http://www.emb.gov.hk/sus)).

### **Hong Kong Institute of Vocational Education (HKIVE)**

4.24 Besides the full time course, the HKIVE also offer part time evening courses in building studies, civil/structural engineering, surveying, construction management and maintenance.

### **Industrial Training Division of the Vocational Training Council**

4.25 In addition to operating the Engineering Graduate Training Scheme and New Technology Training Scheme, the Industrial Training Division of the Vocational Training Council also assists employers in organizing training schemes, in particular, apprenticeship schemes for training technicians and skilled workers. A free apprentice placement service is also provided. The Training Board recommends employers to contact the Division for assistance in setting up training schemes and the recruitment of trainees.

4.26 In addition, the following organizations also provide upgrading courses for Continual Professional Development in order to facilitate members to keep abreast of current technological and commercial developments in the industry:

- (i) The Chartered Institute of Building (Hong Kong) (CIOB);
- (ii) The Hong Kong Institution of Engineers (HKIE);
- (iii) Hong Kong Institute of Construction Managers (HKICM); and  
)
- (iv) The Australian Institute of Building, Hong Kong Chapter (AIB).

### **Recommended Focus Areas for Training in the Forthcoming Future**

#### **Construction Law and Regulation and Work Practices in China**

4.27 After the introduction of CEPA III, the local companies will inevitably be involved in the mainland construction projects or contract registration. The local employers should look for training opportunities related to China construction law and regulation and more importantly, the related work practices in order to enrich their employees knowledge in handling the mainland projects. Putonghua language courses should be included in the training priority list.

#### **Environmental Practices and Issues in Building and Construction**

4.28 More emphasis will be on environmental practices in building and construction and builders are encouraged to take into account environmental factors in the selection of building material especially avoiding the use of hazardous material.

4.29 Since its inception in 1996, HK-BEAM (the Hong Kong Building Environmental Assessment Method) has become the industry standard to measure, improve and label the environmental sustainability of buildings in Hong Kong. To date, over 100 residential, commercial and mixed-use developments covering 6.2 million square meters and including 52 000 residential units have voluntarily adopted HK-BEAM certification, making it on a per capita basis the most widely used scheme of its kind in the world.

4.30 HK-BEAM defines over 100 best practice environmental criteria on the key aspects of Hong Kong's buildings and provides a forum for the design/maintenance team to work for the same environmental goal:

- (i) Hygiene, health, comfort and amenity;
- (ii) Land use, site impacts and transport;
- (iii) Use of materials, recycling, and waste management;
- (iv) Water quality, conservation and recycling; and
- (v) Energy use, efficient systems and equipment and energy management.

4.31 The local employers are encouraged to keep abreast of the development of HK-BEAM in order to comply with the industry standard.

### **Professional Ethics and Behaviour/Work Attitude**

4.32 Many accidents that had occurred in the past causing injury and casualty of construction workers/tenants are indeed related to professional ethics and behaviour. Training on this subject should be stressed for the local employers in order to establish reputation or image on the quality of their buildings.

### **Mandatory Safety Training for Employees in the Construction Industry**

4.33 As one of the measures to tackle the high accident rate in the construction industry, the Government has introduced legislation which requires all those employed to work in construction sites to have been trained in construction site safety and issued with a valid certificate. Under this legislation, CITA is responsible for providing the bulk of this type of training to workers and issuing certificates to persons who have successfully completed the relevant training courses and passed required tests. The Training Board strongly recommends that employers should make suitable arrangements for their workers to receive the necessary training as soon as possible.

### **Registration of Construction Workers**

4.34 The Construction Workers Registration Authority was established on 18 September 2004 under the Construction Workers Registration Ordinance. Members of the Authority were appointed by the Secretary for the Environment, Transport and Works on 18 October 2004 responsible for executing and managing the implementation of the construction workers registration system.

4.35 The objectives of implementing a mandatory registration system through statutory means are to:

- (i) ensure the quality of construction works through assessment and certification of the skill levels of all construction workers;
- (ii) ensure the availability of more reliable data on labour supply to facilitate manpower planning and training;
- (iii) raise the status of construction workers by statutorily recognising their skill levels;
- (iv) provide the workers with a clear career path with a view to motivating them for higher skill levels for higher position and remuneration and hence fostering a quality culture in the construction industry;
- (v) help combating the hiring of illegal workers on construction sites; and
- (vi) assist in resolving wage disputes between contractors and workers with the availability of site entry and exit records.

4.36 The Construction Workers Registration Authority (CWRA) has started to register construction workers in Hong Kong from 29 December 2005. The registration of construction workers would give statutory recognition to their skill levels in respective trades, thus ensuring the quality of construction works and also raising the status of construction workers. The registration system would also provide more reliable data on labour supply, help combat hiring illegal workers, and also help reduce wage disputes between contractors and workers. When the prohibition provisions under the Construction Workers Registration Ordinance are brought into operation later, all construction workers carrying out construction work at construction sites must be registered and employers shall only employ registered construction workers for carrying out such work. When entering a construction site, construction workers should produce their smart cards for verification and for recording of site attendance by a card reading system. Employers are encouraged to collect detailed information from their website ([www.cwra.org.hk](http://www.cwra.org.hk)).

NUMBER EMPLOYED AND NUMBER OF VACANCIES AT DATE OF SURVEY

Job Title	Number Employed at Date of Survey (Excluding Trainees)				Number of Trainees at Date of Survey	Number of Vacancies at Date of Survey	
	Direct	Sub-contractors'	Self-employed	Total			
<b>PROFESSIONAL/TECHNOLOGIST LEVEL</b>							
101	Architect	1 702	13	1	1 716	90	27
102	Builder/ Construction Manager	1 125	14	1	1 140	3	2
103	Building/ Maintenance Surveyor	612	-	-	612	67	-
104	Civil Engineer	3 195	70	1	3 266	270	7
105	Construction Plant Engineer	39	-	-	39	-	4
106	Environmental Engineer	159	5	1	165	24	-
107	Estate Surveyor*	-	-	-	-	-	-
108	Geotechnical Engineer	455	4	-	459	149	-
109	Interior Designer	650	-	-	650	-	3
110	Land Surveyor	207	14	-	221	-	-
111	Landscape Architect	215	4	-	219	3	-

\* Covered separately in manpower survey conducted by the Real Estates Services Training Board (RETB)

Job Title	Number Employed at Date of Survey (Excluding Trainees)				Number of Trainees at Date of Survey	Number of Vacancies at Date of Survey	
	Direct	Sub-contractors'	Self-employed	Total			
<b>PROFESSIONAL/TECHNOLOGIST LEVEL (Continued)</b>							
112	Quantity Surveyor	2 271	20	-	2 291	23	1
113	Safety Officer	455	9	-	464	-	-
114	Structural Engineer	1 018	5	-	1 023	62	2
115	Town Planner	382	-	-	382	-	-
116	Engineering Geologist	100	-	-	100	-	-
117	Quality Control/ Assurance Engineer	153	4	-	157	-	3
118	Building Services Engineer	1 075	12	-	1 087	32	5
	<b>Sub-total</b>	<b>13 813</b>	<b>174</b>	<b>4</b>	<b>13 991</b>	<b>723</b>	<b>54</b>
<b>TECHNICIAN LEVEL</b>							
201	Architectural Technician/ Draughtsman	3 509	25	3	3 537	44	26
202	Assistant Safety Officer/Safety Supervisor	277	13	-	290	9	-
203	Civil/Structural/ Geotechnical Engineering Technician	2 906	33	-	2 939	57	-



Job Title	Number Employed at Date of Survey (Excluding Trainees)				Number of Trainees at Date of Survey	Number of Vacancies at Date of Survey	
	Direct	Sub-contractors'	Self-employed	Total			
TECHNICIAN LEVEL (Continued)							
204	Clerk of Works/ Inspector of Works/ Works Supervisor	4 340	69	-	4 409	6	10
205	Construction Plant Technician	57	7	-	64	2	-
206	Construction Purchaser/ Storekeeper	467	1	-	468	-	-
207	Estimator	811	1	-	812	-	-
208	Interior Design Technician	877	-	-	877	-	24
209	Laboratory Technician (Construction Materials/Soils)	624	20	-	644	3	-
210	Site Agent	881	43	-	924	-	-
211	Site Foreman	5 171	405	-	5 576	54	20
212	Surveying Technician (Building)	895	3	-	898	26	-
213	Surveying Technician (Estate)*	-	-	-	-	-	-
214	Surveying Technician (Land)	609	72	-	681	7	-

Job Title	Number Employed at Date of Survey (Excluding Trainees)				Number of Trainees at Date of Survey	Number of Vacancies at Date of Survey	
	Direct	Sub-contractors'	Self-employed	Total			
<b>TECHNICIAN LEVEL (Continued)</b>							
215	Surveying Technician (Quantity)	1 953	21	-	1 974	12	47
216	Surveying Technician (Town Planning)	260	-	-	260	3	6
217	Quality Control/ Assurance Technician	67	18	-	85	-	-
218	Building Services Engineering Technician/ Electrical Engineering Technician/ Mechanical Engineering Technician	1 526	51	-	1 577	38	4
219	Building Services and Engineering Supervisor	3 658	10	-	3 668	-	-
	<b>Sub-total</b>	<b>28 888</b>	<b>792</b>	<b>3</b>	<b>29 683</b>	<b>261</b>	<b>137</b>
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL</b>							
301	Asphalter (Water Proofing)	109	174	-	283	-	-
302	Asphalter (Road Construction)	5	46	-	51	-	-
303	Bamboo Scaffolder	442	587	-	1 009	-	-

Job Title	Number Employed at Date of Survey (Excluding Trainees)				Number of Trainees at Date of Survey	Number of Vacancies at Date of Survey	
	Direct	Sub-contractors'	Self-employed	Total			
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>							
304	Bar Bender and Fixer	423	1 963	3	2 389	4	-
305	Bricklayer	257	389	-	646	-	-
306	Carpenter (Fender)	19	86	-	105	-	-
307	Carpenter (Formwork)	570	2 821	4	3 395	-	-
308	Concrete Repairer (Spalling Concrete)	87	66	-	153	-	-
309	Concretor	414	822	-	1 236	-	-
310	Construction Plant Mechanic	136	120	-	256	-	-
311	Curtain Wall Installer	480	339	-	819	-	-
312	Demolition Worker Installer	265	12	-	277	-	-
313	Diver	123	7	-	130	-	-
314	Drainlayer	151	431	-	582	-	-
315	Electrician (Main Contractor's)	643	27	-	670	1	-
316	Floor Layer	433	64	-	497	-	-
317	Gas Plumber	169	27	-	196	-	-

Job Title	Number Employed at Date of Survey (Excluding Trainees)				Number of Trainees at Date of Survey	Number of Vacancies at Date of Survey	
	Direct	Sub-contractors'	Self-employed	Total			
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>							
318	General Welder	273	444	26	743	-	-
319	Glazier	528	150	26	704	-	-
320	Ground Investigation Operator/Driller/Borer	309	46	-	355	-	-
321	Grouting Worker	6	37	-	43	-	-
322	Joiner	3 475	1 426	-	4 901	16	-
323	Leveller	605	791	-	1 396	9	34
324	Marble Worker	135	834	-	969	-	-
325	Marine Construction Plant Operator	62	49	-	111	-	-
326	Mason	56	156	-	212	-	-
327	Metal Scaffolder	124	214	-	338	-	-
328	Metal Worker	1 431	1 696	30	3 157	25	8
329	Painter & Decorator	3 113	1 926	-	5 039	-	-
330	Piling Operative	6	186	-	192	-	-
331	Pipelaye	128	211	25	364	-	-

Job Title	Number Employed at Date of Survey (Excluding Trainees)				Number of Trainees at Date of Survey	Number of Vacancies at Date of Survey	
	Direct	Sub-contractors'	Self-employed	Total			
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>							
332	Builder's Lift Operator	10	69	-	79	-	-
333	Plant and Equipment Operator (Load Shifting)	873	712	29	1 614	-	-
334	Plant and Equipment Operator (Hoist and Crane) ( )	228	368	-	596	-	-
335	Plant and Equipment Operator (Piling)	34	93	-	127	-	-
336	Plant and Equipment Operator (Tunnelling)	60	5	-	65	-	-
337	Plasterer	1 183	3 426	20	4 629	-	3
338	Plumber	1 748	993	-	2 741	-	-
339	Rock-Breaking Driller	124	117	-	241	-	-
340	Prestressing Operative	-	4	-	4	-	-
341	Rigger/Metal Formwork Erector	118	759	78	955	-	-

Job Title	Number Employed at Date of Survey (Excluding Trainees)				Number of Trainees at Date of Survey	Number of Vacancies at Date of Survey	
	Direct	Sub-contractors'	Self-employed	Total			
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>							
342	Shotcretor	-	52	-	52	-	-
343	Shotfirer	17	1	-	18	-	-
344	Slope Maintenance Worker	46	3	-	49	-	-
345	Structural Steel Erector	8	97	-	105	-	-
346	Structural Steel Welder	133	137	-	270	-	-
347	Tiler	468	375	1	844	-	-
348	Trackworker	320	-	-	320	-	-
349	Truck Driver	337	639	3	979	-	-
350	Window Frame Installer	868	550	-	1 418	-	-
351	Tunnel Worker	131	28	-	159	-	-
352	Asbestos Abatement Worker	-	-	-	-	-	-
353	Hand-dug Caisson Worker	2	-	-	2	-	-
354	Paving Block Layer	100	19	-	119	-	-

Job Title	Number Employed at Date of Survey (Excluding Trainees)				Number of Trainees at Date of Survey	Number of Vacancies at Date of Survey	
	Direct	Sub-contractors'	Self-employed	Total			
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>							
355	Plant and Equipment Operator (Suspended Working Platform)	2	24	-	26	-	-
356	Plant and Equipment Operator (Demolition)	-	6	-	6	-	-
357	Demolition Worker (Unauthorized Building Work)	28	33	-	61	-	-
358	Roller Operator	-	1	-	1	-	-
	<b>Sub-total</b>	<b>21 815</b>	<b>24 658</b>	<b>245</b>	<b>46 718</b>	<b>55</b>	<b>45</b>
<b>GENERAL WORKER LEVEL</b>							
401	Chainman	628	183	-	811	1	-
402	Concreting Labourer	7	200	-	207	-	-
403	Diver's Linesman	41	2	-	43	-	-
404	Excavator	395	366	1	762	-	-
405	Heavy Load Labourer	174	135	-	309	-	-
406	Labourer	7 321	6 476	63	13 860	-	8
407	Sewerman	243	75	-	318	-	-
	<b>Sub-total</b>	<b>8 809</b>	<b>7 437</b>	<b>64</b>	<b>16 310</b>	<b>1</b>	<b>8</b>
	<b>GRAND TOTAL</b>	<b>73 325</b>	<b>33 061</b>	<b>316</b>	<b>106 702</b>	<b>1 040</b>	<b>244</b>

**Appendix 2**

**Manpower Distribution By Branch**

Job Title	Br. 1 Bldg Sites	Br. 2 Civ Eng Sites	Br. 3 New Cons Contr	Br. 4 Décor Rep Mtn Contr	Br. 5 Spec Trade Contr	Br. 6 Arch, Eng. Surv Serv	Br. 7 Major Est Devlprs	Br. 8 Tert. Inst. Utilities ( )	Br. 9 Govt Dept ( )	Total	
<b>PROFESSIONAL/TECHNOLOGIST LEVEL</b>											
101	Architect	15	13	37	21	30	1 243	22	62	273	1 716
102	Builder/Construction Manager	183	116	284	244	144	74	50	45	-	1 140
103	Building/Maintenance Surveyor	18	13	11	11	6	97	3	40	413	612
104	Civil Engineer	78	371	522	-	33	670	-	249	1 343	3 266
105	Construction Plant Engineer	4	15	5	-	-	-	10	5	-	39
106	Environmental Engineer	4	29	5	-	-	35	-	19	73	165



Job Title	Br. 1 Bldg Sites	Br. 2 Civ Eng Sites	Br. 3 New Cons Contr	Br. 4 Décor Rep Mtn Contr	Br. 5 Spec Trade Contr	Br. 6 Arch, Eng. Surv Serv	Br. 7 Major Est Devlpers	Br. 8 Tert. Inst. Utilities ( )	Br. 9 Govt Dept ( )	Total	
PROFESSIONAL/TECHNOLOGIST LEVEL (Continued)											
107	Estate Surveyor	-	-	-	-	-	-	-	-	-	
108	Geotechnical Engineer	8	31	38	-	-	172	1	17	192	459
109	Interior Designer	3	-	40	522	3	71	11	-	-	650
110	Land Surveyor	15	126	9	1	-	12	2	26	30	221
111	Landscape Architect	3	3	6	-	-	147	-	4	56	219
112	Quantity Surveyor	141	244	570	226	134	715	44	67	150	2 291
113	Safety Officer	165	151	67	29	16	3	5	26	2	464
114	Structural Engineer	42	18	102	27	31	349	3	47	404	1 023
115	Town Planner	-	1	-	-	-	114	1	4	262	382
116	Engineering Geologist	-	5	-	-	-	38	-	-	57	100

Job Title	Br. 1 Bldg Sites	Br. 2 Civ Eng Sites	Br. 3 New Cons Contr	Br. 4 Décor Rep Mtn Contr	Br. 5 Spec Trade Contr	Br. 6 Arch, Eng. Surv Serv	Br. 7 Major Est Devlpers	Br. 8 Tert. Inst. Utilities ( )	Br. 9 Govt Dept ( )	Total	
<b>PROFESSIONAL/TECHNOLOGIST LEVEL (Continued)</b>											
117	Quality Control/ Assurance Engineer	36	32	51	3	6	16	5	8	-	157
118	Building Services Engineer	115	51	65	190	16	289	20	168	173	1 087
	<b>Sub-total</b>	<b>830</b>	<b>1 219</b>	<b>1 812</b>	<b>1 274</b>	<b>419</b>	<b>4 045</b>	<b>177</b>	<b>787</b>	<b>3 428</b>	<b>13 991</b>
<b>TECHNICIAN LEVEL</b>											
201	Architectural Technician/ Draughtsman	30	57	157	417	148	1 815	18	135	760	3 537
202	Assistant Safety Officer/Safety Supervisor	82	117	53	11	13	542	-	13	1	290
203	Civil/Structural/ Geotechnical Engineering Technician	110	267	521	3	46	284	-	226	1 224	2 939

Job Title	Br. 1 Bldg Sites	Br. 2 Civ Eng Sites	Br. 3 New Cons Contr	Br. 4 Décor Rep Mtn Contr	Br. 5 Spec Trade Contr	Br. 6 Arch, Eng. Surv Serv	Br. 7 Major Est Devlpers	Br. 8 Tert. Inst. Utilities ( )	Br. 9 Govt Dept ( )	Total	
TECHNICIAN LEVEL (Continued)											
204	Clerk of Works/ Inspector of Works/ Works Supervisor	117	155	128	310	131	284	29	113	3 142	4 409
205	Construction Plant Technician	8	10	1	-	12	-	-	33	-	64
206	Construction Purchaser/Storekeeper	40	28	215	51	129	1	1	3	-	468
207	Estimator	1	5	125	382	241	56	2	-	-	812
208	Interior Design Technician	2	-	3	781	20	65	1	5	-	877
209	Laboratory Technician (Construction Materials/Soils)	13	14	76	-	-	419	-	56	66	644
210	Site Agent	343	286	102	20	133	-	8	32	-	924
211	Site Foreman	1 430	793	1 023	1 307	940	79	-	4	-	5 576

Job Title	Br. 1 Bldg Sites	Br. 2 Civ Eng Sites	Br. 3 New Cons Contr	Br. 4 Décor Rep Mtn Contr	Br. 5 Spec Trade Contr	Br. 6 Arch, Eng. Surv Serv	Br. 7 Major Est Devlprs	Br. 8 Tert. Inst. Utilities ( )	Br. 9 Govt Dept ( )	Total	
TECHNICIAN LEVEL (Continued)											
212	Surveying Technician (Building)	29	4	-	-	45	198	1	51	570	898
213	Surveying Technician (Estate)	-	-	-	-	-	-	-	-	-	-
214	Surveying Technician (Land)	69	259	105	-	-	44	-	6	198	681
215	Surveying Technician (Quantity)	126	193	298	149	77	632	6	44	449	1 974
216	Surveying Technician (Town Planning)	-	1	1	-	-	47	2	-	209	260
217	Quality Control/ Assurance Technician	21	39	24	-	1	-	-	-	-	85



Job Title	Br. 1 Bldg Sites	Br. 2 Civ Eng Sites	Br. 3 New Cons Contr	Br. 4 Décor Rep Mtn Contr	Br. 5 Spec Trade Contr	Br. 6 Arch, Eng. Surv Serv	Br. 7 Major Est Devlprs	Br. 8 Tert. Inst. Utilities ( )	Br. 9 Govt Dept ( )	Total	
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>											
303	Bamboo Scaffolder	566	97	14	-	351	-	-	-	1	1 029
304	Bar Bender and Fixer	1 398	740	17	42	192	-	-	-	-	2 389
305	Bricklayer	434	142	-	-	69	-	-	1	-	646
306	Carpenter (Fender)	15	80	-	10	-	-	-	-	-	105
307	Carpenter (Formwork)	2 139	1 118	-	-	134	-	-	-	4	3 395
308	Concrete Repairer (Spalling Concrete)	79	32	-	42	-	-	-	-	-	153
309	Concretor	660	363	142	10	56	-	-	-	5	1 236
310	Construction Plant Mechanic	161	48	-	-	44	-	-	2	1	236
311	Curtain Wall Installer	343	24	8	-	444	-	-	-	-	819

Job Title	Br. 1 Bldg Sites	Br. 2 Civ Eng Sites	Br. 3 New Cons Contr	Br. 4 Décor Rep Mtn Contr	Br. 5 Spec Trade Contr	Br. 6 Arch, Eng. Surv Serv	Br. 7 Major Est Devlpers	Br. 8 Tert. Inst. Utilities ( )	Br. 9 Govt Dept ( )	Total
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>										
312	Demolition Worker Installer	31	-	196	-	50	-	-	-	277
313	Diver	-	7	48	-	75	-	-	-	130
314	Drainlayer	371	143	24	-	34	-	-	10	582
315	Electrician (Main Contractor's)	315	122	40	118	32	-	-	43	670
316	Floor Layer	63	5	-	243	185	-	-	1	497
317	Gas Plumber	39	-	16	-	-	-	-	141	196
318	General Welder	318	285	30	26	83	-	-	1	743
319	Glazier	171	11	-	-	521	-	-	1	704
320	Ground Investigation Operator/Driller/ Borer	41	40	232	-	25	17	-	-	355





Job Title	Br. 1 Bldg Sites	Br. 2 Civ Eng Sites	Br. 3 New Cons Contr	Br. 4 Décor Rep Mtn Contr	Br. 5 Spec Trade Contr	Br. 6 Arch, Eng. Surv Serv	Br. 7 Major Est Devlprs	Br. 8 Tert. Inst. Utilities ( )	Br. 9 Govt Dept ( )	Total
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>										
331	Pipelayer	276	47	16	-	25	-	-	-	364
332	Builder's Lift Operator	50	29	-	-	-	-	-	-	79
333	Plant and Equipment Operator (Load Shifting)	291	760	278	-	284	-	-	1	1 614
334	Plant and Equipment Operator (Hoist and Crane)  ( )	206	334	-	-	55	-	-	1	546
335	Plant and Equipment Operator (Piling)	77	33	17	-	-	-	-	-	127
336	Plant and Equipment Operator (Tunnelling)	14	51	-	-	-	-	-	-	65

Job Title	Br. 1 Bldg Sites	Br. 2 Civ Eng Sites	Br. 3 New Cons Contr	Br. 4 Décor Rep Mtn Contr	Br. 5 Spec Trade Contr	Br. 6 Arch, Eng. Surv Serv	Br. 7 Major Est Devlpers	Br. 8 Tert. Inst. Utilities ( )	Br. 9 Govt Dept ( )	Total	
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>											
337	Plasterer	3 599	224	28	370	395	-	-	7	6	4 629
338	Plumber	977	136	16	249	930	-	-	91	342	2 741
339	Rock-Breaking Driller	84	58	-	70	28	-	-	-	1	241
340	Prestressing Operative	4	-	-	2	-	-	-	-	-	4
341	Rigger/Metal Formwork Erector	357	503	-	-	95	-	-	-	-	955
342	Shotcretor	48	4	-	-	-	-	-	-	-	52
343	Shotfirer	-	18	-	-	-	-	-	-	-	18
344	Slope Maintenance Worker	3	-	30	-	8	-	-	8	-	49
345	Structural Steel Erector	35	62	8	-	-	-	-	-	-	105

Job Title	Br. 1 Bldg Sites	Br. 2 Civ Eng Sites	Br. 3 New Cons Contr	Br. 4 Décor Rep Mtn Contr	Br. 5 Spec Trade Contr	Br. 6 Arch, Eng. Surv Serv	Br. 7 Major Est Devlprs	Br. 8 Tert. Inst. Utilities ( )	Br. 9 Govt Dept ( )	Total
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>										
346	Structural Steel Welder	94	83	61	-	32	-	-	-	270
347	Tiler	442	18	-	2	375	-	-	7	844
348	Trackworker	-	-	-	320	-	-	-	-	320
349	Truck Driver	65	811	23	-	75	-	-	1	979
350	Window Frame Installer	614	3	-	152	649	-	-	-	1 418
351	Tunnel Worker	-	159	-	-	-	-	-	-	159
352	Asbestos Abatement Worker	-	-	-	-	-	-	-	-	-
353	Hand-dug Caisson Worker	-	2	-	-	-	-	-	-	2
354	Paving Block Layer	15	4	-	100	-	-	-	-	119

Job Title	Br. 1 Bldg Sites	Br. 2 Civ Eng Sites	Br. 3 New Cons Contr	Br. 4 Décor Rep Mtn Contr	Br. 5 Spec Trade Contr	Br. 6 Arch, Eng. Surv Serv	Br. 7 Major Est Devlprs	Br. 8 Tert. Inst. Utilities ( )	Br. 9 Govt Dept ( )	Total	
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>											
355	Plant and Equipment Operator (Suspended Working Platform)	24	2	-	-	-	-	-	-	26	
356	Plant and Equipment Operator (Demolition)	2	4	-	-	-	-	-	-	6	
357	Demolition Worker (Unauthorized Building Work)	33	1	28	-	-	-	-	-	61	
358	Roller Operator	1	-	-	-	-	-	-	-	1	
	<b>Sub-total</b>	<b>21 966</b>	<b>7 885</b>	<b>1 422</b>	<b>7 140</b>	<b>7 430</b>	<b>24</b>	<b>-</b>	<b>447</b>	<b>404</b>	<b>46 718</b>
<b>GENERAL WORKER LEVEL</b>											
401	Chainman	65	352	147	-	-	7	-	3	237	811
402	Concreting Labourer	66	135	-	-	4	-	-	-	2	207
403	Diver's Linesman	-	2	16	-	25	-	-	-	-	43

Job Title	Br. 1 Bldg Sites	Br. 2 Civ Eng Sites	Br. 3 New Cons Contr	Br. 4 Décor Rep Mtn Contr	Br. 5 Spec Trade Contr	Br. 6 Arch, Eng. Surv Serv	Br. 7 Major Est Devlprs	Br. 8 Tert. Inst. Utilities	Br. 9 Govt Dept	Total	
GENERAL WORKER LEVEL (Continued)											
404	Excavator	222	137	383	-	17	-	-	3	762	
405	Heavy Load Labourer	167	39	16	84	-	-	3	-	309	
406	Labourer	5 392	5 078	593	1 293	445	97	-	79	883	13 860
407	Sewerman	63	19	156	-	5	-	-	1	74	318
	<b>Sub-total</b>	<b>5 975</b>	<b>5 762</b>	<b>1 311</b>	<b>1 377</b>	<b>496</b>	<b>104</b>	<b>-</b>	<b>86</b>	<b>1 199</b>	<b>16 310</b>
	<b>GRAND TOTAL</b>	<b>31 384</b>	<b>17 221</b>	<b>7 659</b>	<b>15 799</b>	<b>11 415</b>	<b>8 511</b>	<b>254</b>	<b>2 439</b>	<b>12 020</b>	<b>106 702</b>

**DISTRIBUTION OF WORKERS BY MONTHLY INCOME RANGE**

Job Title	Under \$7,000	\$7,001-\$10,000	\$10,001-\$13,000	\$13,001-\$18,000	\$18,001-\$25,000	\$25,001-\$35,000	\$35,001-\$50,000	Over \$50,000	Unspecified	
<b>PROFESSIONAL/TECHNOLOGIST LEVEL</b>										
101	Architect	-	-	-	13	151	472	690	303	87
102	Builder/ Construction Manager	-	-	16	-	240	288	297	198	101
103	Building/ Maintenance Surveyor	-	-	-	1	31	70	136	351	23
104	Civil Engineer	-	-	1	18	333	422	483	1 862	147
105	Construction Plant Engineer	-	-	-	-	11	5	5	6	12
106	Environmental Engineer	-	-	-	10	11	98	7	20	19
107	Estate Surveyor	-	-	-	-	-	-	-	-	-
108	Geotechnical Engineer	-	-	-	-	44	118	91	172	34
109	Interior Designer	-	-	-	166	372	51	41	1	19
110	Land Surveyor	-	-	-	6	47	45	39	38	46
111	Landscape Architect	-	-	-	-	28	53	104	34	-
112	Quantity Surveyor	-	-	2	175	539	653	653	170	99
113	Safety Officer	-	-	6	19	116	175	61	13	74
114	Structural Engineer	-	-	-	15	195	178	305	285	45
115	Town Planner	-	-	-	8	31	23	87	232	1
116	Engineering Geologist	-	-	-	8	-	22	-	70	-

Job Title	Under \$7,000	\$7,001-\$10,000	\$10,001-\$13,000	\$13,001-\$18,000	\$18,001-\$25,000	\$25,001-\$35,000	\$35,001-\$50,000	Over \$50,000	Unspecified	
<b>PROFESSIONAL/TECHNOLOGIST LEVEL (Continued)</b>										
117	Quality Control/ Assurance Engineer	-	-	-	10	40	79	8	5	15
118	Building Services Engineer	-	-	2	20	114	261	418	124	148
	<b>Sub-total</b>	-	-	27	469	2 303	3 013	3 425	3 884	870
<b>TECHNICIAN LEVEL</b>										
201	Architectural Technician/ Draughtsman	36	341	794	901	612	328	134	5	386
202	Assistant Safety Officer/Safety Supervisor	-	10	36	71	86	51	1	-	35
203	Civil/Structural/ Geotechnical Engineering Technician	-	81	744	555	757	579	86	3	104
204	Clerk of Works/ Inspector of Works/ Works Supervisor	-	93	707	406	1 635	885	490	1	192
205	Construction Plant Technician	-	-	2	3	17	36	-	-	6
206	Construction Purchaser/ Storekeeper	-	130	126	82	73	36	2	-	19
207	Estimator	37	1	146	214	157	226	30	1	-
208	Interior Design Technician	-	4	360	349	143	20	-	-	1
209	Laboratory Technician (Construction Materials/Soils)	27	335	47	1	53	63	-	-	118
210	Site Agent	-	26	11	142	269	265	96	2	113
211	Site Foreman	2	19	620	2 582	1 489	438	10	-	416

Job Title	Under \$7,000	\$7,001-\$10,000	\$10,001-\$13,000	\$13,001-\$18,000	\$18,001-\$25,000	\$25,001-\$35,000	\$35,001-\$50,000	Over \$50,000	Unspecified	
<b>TECHNICIAN LEVEL (Continued)</b>										
212	Surveying Technician (Building)	-	-	113	679	67	20	16	-	3
213	Surveying Technician (Estate)	-	-	-	-	-	-	-	-	-
214	Surveying Technician (Land)	-	17	113	164	153	182	-	-	52
215	Surveying Technician (Quantity)	-	7	771	381	434	207	124	-	50
216	Surveying Technician (Town Planning)	-	-	69	2	188	-	-	-	1
217	Quality Control/ Assurance Technician	4	8	21	27	12	7	-	-	6
218	Building Services Engineering Technician/ Electrical Engineering Technician/ Mechanical Engineering Technician	-	21	522	337	267	138	179	12	101
219	Building Services and Engineering Supervisor	-	16	1 316	1 027	1 015	182	16	-	96
	<b>Sub-total</b>	<b>106</b>	<b>1 109</b>	<b>6 548</b>	<b>7 923</b>	<b>7 427</b>	<b>3 663</b>	<b>1 184</b>	<b>24</b>	<b>1 699</b>
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL</b>										
301	Asphalter (Water Proofing)	-	79	51	89	4	-	-	-	30
302	Asphalter (Road Construction)	-	21	5	-	25	-	-	-	-
303	Bamboo Scaffolder	25	-	164	263	439	18	-	-	120



Job Title	Under \$7,000	\$7,001-\$10,000	\$10,001-\$13,000	\$13,001-\$18,000	\$18,001-\$25,000	\$25,001-\$35,000	\$35,001-\$50,000	Over \$50,000	Unspecified	
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>										
304	Bar Bender and Fixer	-	17	233	814	909	117	3	-	296
305	Bricklayer	-	20	233	297	50	17	-	-	29
306	Carpenter (Fender)	-	2	10	22	26	45	-	-	-
307	Carpenter (Formwork)	-	42	500	1 143	1 271	63	20	-	356
308	Concrete Repairer (Spalling Concrete)	-	2	82	61	-	-	-	-	8
309	Concretor	-	6	427	309	369	21	-	-	104
310	Construction Plant Mechanic	-	9	60	135	14	-	-	-	38
311	Curtain Wall Installer	-	32	554	136	41	-	-	-	56
312	Demolition Worker Installer	-	6	170	88	13	-	-	-	-
313	Diver	-	-	-	-	123	5	2	-	-
314	Drainlayer	-	2	249	190	90	2	-	-	49
315	Electrician (Main Contractor's)	-	9	268	292	86	-	-	-	15
316	Floor Layer	-	-	-	-	-	-	-	-	-
317	Gas Plumber	-	15	412	45	-	25	-	-	-
318	General Welder	-	33	146	13	-	-	-	-	4
319	Glazier	-	7	225	361	84	5	-	-	61
320	Ground Investigation Operator/Driller/Borer	-	64	208	38	29	1	-	-	15
321	Grouting Worker	-	10	-	11	9	-	-	-	13

Job Title	Under \$7,000	\$7,001-\$10,000	\$10,001-\$13,000	\$13,001-\$18,000	\$18,001-\$25,000	\$25,001-\$35,000	\$35,001-\$50,000	Over \$50,000	Unspecified	
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>										
322	Joiner	-	310	2 189	1 761	265	49	35	-	292
323	Leveller	19	146	370	616	80	3	5	-	157
324	Marble Worker	-	30	500	59	77	-	-	-	303
325	Marine Construction Plant Operator	-	-	-	33	17	-	-	-	61
326	Mason	-	55	47	83	27	-	-	-	-
327	Metal Scaffolder	-	14	102	111	66	-	-	-	45
328	Metal Worker	-	294	1 297	1 018	206	39	-	-	303
329	Painter & Decorator	23	797	2 360	1 501	188	16	-	-	154
330	Piling Operative	-	-	16	74	2	21	-	-	79
331	Pipelayer	-	-	96	65	134	-	-	-	69
332	Builder's Lift Operator	22	4	4	29	2	-	-	-	18
333	Plant and Equipment Operator (Load Shifting)	6	43	571	753	96	4	-	-	141
334	Plant and Equipment Operator (Hoist and Crane) ( )	-	1	82	343	84	-	-	-	86
335	Plant and Equipment Operator (Piling)	-	-	23	85	-	10	-	-	9
336	Plant and Equipment Operator (Tunnelling)	-	-	3	33	-	6	-	-	23

Job Title	Under \$7,000	\$7,001-\$10,000	\$10,001-\$13,000	\$13,001-\$18,000	\$18,001-\$25,000	\$25,001-\$35,000	\$35,001-\$50,000	Over \$50,000	Unspecified	
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>										
337	Plasterer	-	14	1 868	1 709	628	12	-	-	398
338	Plumber	-	761	602	930	291	-	-	-	157
339	Rock-Breaking Driller	-	12	136	62	15	7	-	-	9
340	Prestressing Operative	-	-	-	3	1	-	-	-	-
341	Rigger/Metal Formwork Erector	-	163	230	459	62	6	-	-	35
342	Shotcretor	-	40	8	-	3	-	-	-	1
343	Shotfirer	-	-	1	1	-	5	-	-	11
344	Slope Maintenance Worker	-	-	38	11	-	-	-	-	-
345	Structural Steel Erector	-	8	3	74	9	8	-	-	3
346	Structural Steel Welder	-	-	95	144	21	7	-	-	3
347	Tiler	-	34	229	387	95	10	-	-	89
348	Trackworker	-	-	320	-	-	-	-	-	-
349	Truck Driver	-	47	274	361	137	-	-	-	160
350	Window Frame Installer	-	212	745	228	43	-	-	-	190
351	Tunnel Worker	-	-	12	3	108	-	-	-	36
352	Asbestos Abatement Worker	-	-	-	-	-	-	-	-	-
353	Hand-dug Caisson Worker	-	-	-	-	-	-	-	-	2
354	Paving Block Layer	-	-	104	9	-	-	-	-	6

Job Title	Under \$7,000	\$7,001-\$10,000	\$10,001-\$13,000	\$13,001-\$18,000	\$18,001-\$25,000	\$25,001-\$35,000	\$35,001-\$50,000	Over \$50,000	Unspecified	
<b>SKILLED &amp; SEMI-SKILLED WORKER LEVEL (Continued)</b>										
355	Plant and Equipment Operator (Suspended Working Platform)	-	-	11	2	8	-	-	-	5
356	Plant and Equipment Operator (Demolition)	-	-	1	4	1	-	-	-	5
357	Demolition Worker (Unauthorized Building Work)	-	-	52	-	-	-	-	-	9
358	Roller Operator	-	1	-	-	-	-	-	-	-
	<b>Sub-total</b>	<b>95</b>	<b>3 362</b>	<b>16 800</b>	<b>15 515</b>	<b>6 294</b>	<b>522</b>	<b>65</b>	<b>-</b>	<b>4 065</b>
<b>GENERAL WORKER LEVEL</b>										
401	Chainman	43	265	396	59	-	-	-	-	48
402	Concreting Labourer	-	73	64	23	15	-	-	-	32
403	Diver's Linesman	-	-	-	43	-	-	-	-	-
404	Excavator	-	160	429	143	18	-	-	-	12
405	Heavy Load Labourer	-	112	92	87	-	-	-	-	18
406	Labourer	1 496	5 516	4 236	1 062	10	-	-	-	1 567
407	Sewerman	-	226	15	73	-	-	-	-	4
	<b>Sub-total</b>	<b>1 512</b>	<b>6 352</b>	<b>5 232</b>	<b>1 490</b>	<b>43</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1 681</b>
	<b>GRAND TOTAL</b>	<b>1 713</b>	<b>10 823</b>	<b>28 607</b>	<b>25 397</b>	<b>16 067</b>	<b>7 198</b>	<b>4 674</b>	<b>3 908</b>	<b>8 315</b>

General Household Survey conducted by Census and Statistics Department  
Unemployment Rate by Selected Industry (Construction) and Occupation, Q3 2005

	<u>%</u>
Occupation	
Managers and Administrators	3.9
Professionals	3.7
Associate Professionals	3.3
Clerks	2.6
Service Workers and Shop Sales Workers	0.0
Craft and related Workers	11.8
Plant and Machine Operators and Assemblers	5.8
Elementary Occupations	21.1
<hr/>	
<b>Total</b>	<b>11.0</b>

Projected Number of Degrees Graduates  
of Local Tertiary Institutions (2005-2008)

二 五至二 八年預計本地學位畢業生人數

Institution 院校	Program 課程	Projected Number of Graduates 預計畢業生人數			
		2005	2006	2007	2008
Architectural Disciplines 建築行業					
Chinese University of Hong Kong (HKCU) 香港中文大學	M. of Arch. 建築學碩士	37	37	40	40
University of Hong Kong (HKU) 香港大學	M. of Arch. 建築學碩士	69	69	69	69
	M. of Arch. (Landscape) 建築學碩士(園景規劃學)	30	-	28	-
<b>Total 總數</b>		<b>136</b>	<b>106</b>	<b>137</b>	<b>109</b>
Civil/Geotechnical/Structural/ Environmental Engineering Disciplines 土木 土力 結構 環境工程行業					
HK Polytechnic University (HKPU) 香港理工大學	B.Eng. (Civil & Envir. Eng.)* 工學士(土木 環境工程學)	37	37	23	-
	B.Eng. (Civil & Struct. Eng.)* 工學士(土木 結構工程學)	97	92	72	45
	B.Eng. (Civil Eng.) ^	-	-	-	85
	B.Sc. (Bldg. Services Eng.) 理學士(建築工程學)	62	61	56	24
HK University of Science & Technology (HKUST) 香港科技大學	B.Eng. (Civil & Struct. Eng.) 工學士(土木 構工程學)	99	98	100	100
	B.Eng. (Civil & Envir. Eng.) 工學士(土木 工程學)	17	12	15	15
University of Hong Kong (HKU) 香港大學	B.Eng. (Civil Eng./Law) 工學士(土木工程學 )	119	106	90	86
	B.Eng. (Civil Eng./Envir. Eng.) 工學士(土木 工程學)	22	19	13	12
<b>Total 總數</b>		<b>453</b>	<b>425</b>	<b>369</b>	<b>367</b>

\* Phasing out starting from 2005/2006

^ Phasing in starting from 2005/06

Institution 院校	Program 課程	Projected Number of Graduates 預計畢業生人數			
		2005	2006	2007	2008
Surveying Disciplines 測量行業					
City University of Hong Kong (CITYU) 香港城市大學	B.Sc. (Surveying) 理學士(測量學)	46	35	36	55
	B.Eng. (Bldg. Serv. Eng.) 工學士(屋宇裝備工程學)	47	50	44	25
	B.Eng. (Const. Eng. and Mgt.) 工學士(建造工程及管理學)	25	27	29	35
	B.Eng. (Modern Structural Eng.) 工學士(現代工程結構學)	17	20	11	15
HK Polytechnic University (HKPU) 香港理工大學	B.Sc. (Building Surveying) 理學士(建築測量學)	57	61	58	79
	B.Sc. (Surveying & Geo-Info.) 理學士(土地測量及地理資訊學)	52	52	28	36
University of Hong Kong (HKU) 香港大學	B.Sc. in Surveying 理學士(測量學)	51	48	45	50
<b>Total 總數</b>		<b>295</b>	<b>293</b>	<b>251</b>	<b>295</b>

Projected Number of Technician Graduates  
of Local Institutions (2005-2008)

二 五至二 八年預計本地技術員畢業生人數

Institution 院校	Course 課程	Projected Number of Graduates 預計畢業生人數			
		2005	2006	2007	2008
HKIVE 香港專業教育學院 (職業訓練局)	Higher Diploma (Civil/Struct./Bld. Eng.) 高級文憑(土木 結構 建築學)	484	456	436	428
	Diploma (Civil Eng./Bld. Std/ Surveying) 文憑(土木 建築/測量學)	73	44	32	32
	PT/Higher Certificate (Civil Eng./Bld. Std./Q.S.) 部份時間制 高級證書(土木 建 築 工料測量等)	279	204	161	77
	PT/Certificate (Civil Eng./Bld. Std./Q.S.) 部分時間制 證書(土木 建築 工料測量學)	485	440	331	300

Institution 院校	Program 課程	Projected Number of Graduates 預計畢業生人數			
		2005	2006	2007	2008
CityU 香港城市大學	FT / ASc/HD (Arch. Std.) 全日制副學士 高級文憑(建築學)	85	90	90	90
	FT / ASc/HD (Bldg. Serv. Eng) 全日制副學士 高級文憑(屋宇裝備工程學)	85	90	90	90
	FT/Asc (Cons. Eng. & Mgt.) 全日制 副學士(建造工程及管理學)	85	90	90	90
	FT/ASc (Surveying) 全日制 副學士(測量學)	160	150	150	150
HKPU 香港理工大學	FT/HD (Bldg. Eng. & Mgt.) 全日制 高級文憑(建築工程及管理學)	89	89	125	125
	FT/HD (Geomatics) 全日制 高級文憑(地理資訊學)	58	58	40	40
	FT/HD (Civil Engineering) 全日制 高級文憑(土木工程)	73	73	45	45
CITA 建造業訓練局	Construction Supervisor/ Technician Training Program 建造業監工 技術員訓練課程	18 <sup>△</sup>	156	160	160
<b>Total 總數</b>		<b>1 974</b>	<b>1 940</b>	<b>1 750</b>	<b>1 627</b>

Projected Local Supply of Skilled & Semi-skilled Worker Graduates (2005-2008)

二 五至二 八年預計本地技工畢業生人數

Institution	Mode	2005	2006	2007	2008
HKIVE 香港專業教育學院	PTDR (3-year Craft Cert.) 部分時間制(三年制技工證書課程)	49	32	37	39
	PTE (Craft Cert.) 夜間制(技工證書課程)	103	111	115	122
CITA 建造業訓練局	FT (1-2 year Basic Craft Cert.) 全日制(一至兩年制基本技工證書課程)	518	360	440	440
	FT (adult short courses) 全日制(成年人短期課程)	1 495	1 000	1 000	1 000
<b>Total 總數</b>		<b>2 165</b>	<b>1 503</b>	<b>1 592</b>	<b>1 601</b>

△ Starting from the 2004/2005 training year, three courses in the Construction Supervisor/Technician Programme were changed to 2 years. Therefore, only 1 class of 18 trainees in the 1-year Cert in Quantity Measurement course completed the Programme in 2005.



**Membership of the  
Building and Civil Engineering Training Board**

(As at 1 October 2005)

**Chairman**

Mr MOK Kwok-woo, Peter (On an ad personam basis)

**Members**

Mr CHAN Kwan-sang, Tony (nominated by the Hong Kong Construction Association Ltd.)

Mr CHAN Pak-cheung, Raymond (nominated by a major civil/structural engineering consulting firm)

Dr CHEUNG Kwok-wai, Alex (nominated by a building/civil engineering contracting firm)

Mr CHEUNG Siu-lun (nominated by the Hong Kong Construction Association Ltd.)

Mr CHOI Chun-wa (nominated by a workers union)

Mr CHOW Cheuk-tao (nominated by the Hong Kong Plumbing and Sanitary Ware Trade Association Ltd.)

Prof CHUNG Hung-kwan, Barnabas (nominated by the Hong Kong Institute of Surveyors)

Dr KUANG Jun-shang (nominated by the Hong Kong University of Science and Technology)

Mr Kyran SZE (nominated by the Hong Kong Institute of Architects)

Mr LOK Tat-hong, Howard	(nominated by the Hong Kong E & M Contractors Association Ltd.)
Dr NG Shiu-tong, Thomas	(nominated by the University of Hong Kong)
Mr NG Yau-yee, Peter	(nominated by the Hong Kong Institute of Construction Managers)
Mr YIU Kin-sang, Eddie	(nominated by the Construction Industry Training Authority)
Mr HUI Yat-kong, Andrew	representing the Secretary for Environment, Transport and Works
Mr LAM Ho-yin, Ricky	representing for the Director of Housing
Mr NG Lung-hoi	representing the Commissioner for Labour
Mr WONG Man-kai	(representing the Executive Director of the Vocational Training Council)

**Co-opted Member**

Mr LO Kin-keung	(Hong Kong Institute of Vocational Education (Tsing Yi)) ( )
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**Secretary**

Mr LEUNG Wing-kwan, Freddy	(Vocational Training Council)
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Terms of Reference of  
Building and Civil Engineering Training Board

1. To determine the manpower demand of the industry, including the collection and analysis of relevant manpower and student/trainee statistics and information on socio-economic, technological and labour market developments.
2. To assess and review whether the manpower supply for the industry matches with the manpower demand.
3. To recommend to the Vocational Training Council the development of vocational education and training facilities to meet the assessed manpower demand.
4. To advise the Hong Kong Institute of Vocational Education (IVE) and training & development centres on the direction and strategic development of their programmes in the relevant disciplines.
5. To advise on the course planning, curriculum development and quality assurance systems of the IVE and training & development centres.
6. To prescribe job specifications for the principal jobs in the industry defining the skills, knowledge and training required.
7. To advise on training programmes for the principal jobs in the industry specifying the time a trainee needs to spend on each skill elements.
8. To tender advice in respect of skill assessments, trade tests and certification for in-service workers, apprentices and trainees, for the purpose of ascertaining that the specified skill standards have been attained.
9. To advise on the conduct of skill competitions in key trades in the industry for the promotion of vocational education and training as well as participation in international competitions.
10. To liaise with relevant bodies on matters pertaining to the development and promotion of vocational education and training in the industry, including employers, employers' associations, trade unions, professional institutions, training and educational institutions and government departments.
11. To organize seminars/conferences/symposia on vocational education and training for the industry.
12. To advise on the publicity relating to the activities of the Training Board and relevant vocational education and training programmes of the VTC.
13. To submit to the Council an annual report on the Training Board's work and its recommendations on the strategies for programmes in the relevant disciplines.
14. To undertake any other functions delegated by the Council in accordance with Section 7 of the Vocational Training Council Ordinance.

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<b>CONFIDENTIAL</b>	
<b>WHEN ENTERED WITH DATA</b>	

VOCATIONAL TRAINING COUNCIL

THE 2005 MANPOWER SURVEY OF THE BUILDING AND CIVIL ENGINEERING INDUSTRY

QUESTIONNAIRE

PLEASE READ THE EXPLANATORY NOTES BEFORE COMPLETING THIS QUESTIONNAIRE

<u>For Official Use Only:</u>	Rec. Type	Survey Code	Industry Code	Establishment No.	Enumerator's No.	Editor's No.	Check Digit	No. of Employees Covered by the Questionnaire
	<input style="width: 20px; height: 20px;" type="text" value="1"/> 1	<input style="width: 20px; height: 20px;" type="text" value="0"/> <input style="width: 20px; height: 20px;" type="text" value="2"/> 2 3	<input style="width: 40px; height: 20px;" type="text"/> 4 5 6 7 8 9	<input style="width: 40px; height: 20px;" type="text"/> 10 11 12 13 14 15	<input style="width: 20px; height: 20px;" type="text"/> 16 17	<input style="width: 20px; height: 20px;" type="text"/> 18 19	<input style="width: 20px; height: 20px;" type="text"/> 20 21 22	<input style="width: 40px; height: 20px;" type="text"/> 23 24 25 26 27

NAME OF ESTABLISHMENT: \_\_\_\_\_ ADDRESS: \_\_\_\_\_

NATURE OF WORK: \_\_\_\_\_ CONTRACT NO. (for Public Works only): \_\_\_\_\_

NAME OF PERSON TO CONTACT:  POSITION: \_\_\_\_\_  
28 47

TEL. NO.:  -   
48 55 56 63

FAX NO.: \_\_\_\_\_

E-MAIL :   
64 98

VTC-BC-01

<u>For Official Use Only:</u>					
Type of end-use : _____					
Rec. Type	Site RI	Project - Starting (yymm)	Project - Ending (yymm)	Project - Type	End-use code
<input style="width: 20px; height: 20px;" type="text" value="3"/> 1	<input style="width: 40px; height: 20px;" type="text"/> 8 9 10 11 12 13 14 15 16 17 18 19	<input style="width: 40px; height: 20px;" type="text"/> 20 21 22 23	<input style="width: 40px; height: 20px;" type="text"/> 24 25 26 27	<input style="width: 20px; height: 20px;" type="text"/> 28	<input style="width: 40px; height: 20px;" type="text"/> 29 30 31 32 33 34

- Project Type :
- (1) Site formation, piling and related formation work
  - (2) Erection of superstructure including construction of basement
  - (3) Civil engineering

(A) Job (See Appendix C) C			(B) Monthly Income	(C) Number of Employees at Date of Survey (excl. trainees)			(D) No. of Vacancies at Date of Survey (excluding trainees)	(E) No. of Trainees at Date of Survey	Column B Enter into column B employees average monthly income range according to the following code:  (B) Code    Monthly Income Range
Title	Rec. Type	Code No.	Code No.	Direct	Sub- contractors'	Self- employed	24-26	27-29	
		8-10	11	12-15	16-19	20-23			
1	2								1. Under \$7,001
2	2								2. \$7,001 - \$10,000
3	2								3. \$10,001 - \$13,000
4	2								4. \$13,001 - \$18,000
5	2								5. \$18,001 - \$25,000
6	2								6. \$25,001 - \$35,000
7	2								7. \$35,001 - \$50,000
8	2								8. Over \$50,000
9	2								
10	2								
11	2								
12	2								
13	2								
14	2								
15	2								
16	2								
17	2								
18	2								
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30	2								
31	2								
32	2								
33	2								
34	2								
35	2								

Note 1 If additional lines are necessary, please tick here and enter on supplementary sheet(s).



Note 2 The term 'trainees' includes all trainees and apprentices.

The 2005 Manpower Survey of the  
Building and Civil Engineering Industry

Explanatory Notes

1. Before completing the questionnaire, please read carefully the job titles and job descriptions in Appendix C.

C

2. Please complete the columns ('A' to 'E') of the questionnaire and insert a zero ( 0 ) for any column not applicable to your establishment.

'A' 'E'

0

3. Job Titles - Column 'A'  
'A'

- (a) Please enter into column 'A' those job titles together with their appropriate code numbers specified in Appendix C, applicable to your establishment/site in order of their skill levels (i.e. technologist level jobs first followed by technician, skilled/semi-skilled and general worker level jobs).

C

'A'

- (b) Please add in column 'A' titles of any jobs not mentioned in Appendix C, briefly describe them and indicate their skill levels.

C

'A'

- (c) Please classify an employee at the professional/technologist level according to his basic training and professional discipline, e.g., a civil engineer performing duties such as contract administration, project management or site management should be classified as a civil engineer.

- (d) Please classify an employee according to his main duty irrespective of any additional secondary duties he may be required to perform, (e.g. a technician, who works mainly as a site foreman but is also required to perform the work of a draughtsman occasionally, should be classified as a site foreman and not as a draughtsman).

4. Total Monthly Income Range of Employees - Column 'B'

Please enter into this column the average monthly income range code during the past 12 months (1.2.2004 - 31.1.2005) for each type of employees. Monthly income should include basic wages, regular overtime pay, cost of living allowance, meal allowance etc., if any. If you have more than one employee doing the same job, please enter the average figure.

'B'

5. Number of Employees at Date of Survey (Excluding Trainees) - Column 'C'

Direct employee includes both permanent and casual workers directly employed by your establishment. Sub-contractor's employee means those workers employed by your sub-contractors who work in your sites during the period of survey. Self-employed workers are separately entered.

In the case of the office of an establishment, only employees normally stationed in the office need to be filled in. Employees stationed in sites should only be enumerated in the sites.

6. Number of Vacancies at Date of Survey (Excluding Trainees) - Column 'D'

Please fill in the number of existing vacancies (excluding those for trainees).

'Existing vacancies' refer to those unfilled, immediately available job openings for which the establishment is actively trying to recruit personnel at date of survey.



7. Number of Trainees at Date of Survey - Column 'E'  
—'E'

Please fill in the total number of employees undergoing training.

8. Example

To facilitate proper completion, an example is given on the next page for your reference.

Example \_\_\_\_\_

(A) Job  (See Appendix C) C			(B) Monthly Income		(C) Number of Employees at Date of Survey (excl. trainees)			(D) No. of Vacancies at Date of Survey (excluding trainees)	(E) No. of Trainees at Date of Survey	<u>Column B</u>  Enter into cloumn B employees' average monthly income range according to the following code:
Title	Rec. Type	Code No.	Code No.	Direct	Sub- contractors'	Self- employed	24-26	27-29		
		8-10	11	12-15	16-19	20-23				
1 Site Foreman	2	2   1   1	5	2	0	1   5	1	1	1. Under \$7,001	
2 Bricklayer	2	3   0   5	4	0	2   0	1   0	3	3	2. \$7,001 - \$10,000	
3	2								3. \$10,001 - \$13,000	
4	2								4. \$13,001 - \$18,000	
5	2								5. \$18,001 - \$25,000	
6	2								6. \$25,001 - \$35,000	
7	2								7. \$35,001 - \$50,000	
8	2								8. Over \$50,000	
9	2									
10	2									
11	2									
12	2									
13	2									
14	2									
15	2									
16	2									

**JOB DESCRIPTIONS FOR PRINCIPAL JOBS  
IN THE BUILDING AND CIVIL ENGINEERING INDUSTRY**

**General Definition**

**Professional/Technologist** - A professional/technologist is a person who applies his professional skills to a wide range of technical activities and is able to use his knowledge and experience to initiate practical developments. He is expected to accept a high degree of responsibility and, in many cases, to push forward the boundaries of knowledge in his particular field. A professional/ technologist should normally have received education and training equivalent to that required for corporate membership of a professional institution.

**Technician** - A technician is one who occupies a position between the professional/technologist and the tradesman. His education, training and practical experience should enable him to apply proven techniques to solve technical problems. He is expected to carry a measure of technical responsibility, normally under the guidance of a professional/technologist.

**Skilled Worker** - A skilled worker should be able to apply a range of skills and knowledge relevant to his trade with minimum direction or supervision. He should hold a trade test certificate or has equivalent qualification and experience such that he should have adequate technical knowledge which enables him to acquire new skills to cope with the changing technologies. Some categories of skilled workers are required by law to hold relevant licences issued by appropriate authorities.

**Semi-skilled Worker** - A semi-skilled worker is one who possesses skill level and knowledge in between that of a skilled worker and a general worker. He should possess an intermediate trade test certificate or have equivalent qualification and experience. Under certain trades, the semi-skilled worker category is not applicable as some existing legislations only allow a fully qualified worker to carry out the work.

**General Worker** - A general worker normally performs general cleaning, minor excavation work and other simple duties as directed by the skilled worker or other supervisory staff. He should possess simple job related skills which may be acquired on-the-job or off-the-job.

Note: All job titles mentioned in this Job Description apply to both male and female workers.

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Code	Job Title	Job Description
<b>PROFESSIONAL/TECHNOLOGIST</b>		
101	Architect	Plans, designs and supervises the erection of all types of building in compliance with building ordinance, regulations and requirements of public utilities. He is responsible for all stages and facets of a building project including advice on the brief, feasibility and sketch-planning, estimates, specifications, contract drawing and documents, tender action, contract supervision, and financial control. He also co-ordinates the work of allied disciplines engaged on building projects.
102	Builder/ Construction Manager	Directs and assumes responsibilities for all aspects of construction projects in accordance with the agreed method, procedure, budget and specifications; co-ordinates work of main contractor, sub-contractors, specialist contractors and suppliers; liaises with architects, engineers, surveyors, specialist consultants, contractors and government departments; reviews, inspects, evaluates and reports on the quality, progress and cost of works and adjusts schedule as necessary.
103	Building/ Maintenance Surveyor	Deals with the planning, administration and co-ordination of all types of works (including maintenance) to buildings and land with particular cognizance of public health, planning and building regulations requirements.

Code	Job Title	Job Description
<b>PROFESSIONAL/TECHNOLOGIST (Continued)</b>		
104	Civil Engineer	<p>Plans, designs, constructs and supervises the construction of all civil engineering works required for the health, welfare, safety, employment and pleasure of mankind, and for development of natural resources and environmental control. Usually specialises in one or more of the following:</p> <ol style="list-style-type: none"> <li>(1) structural engineering</li> <li>(2) geotechnical engineering</li> <li>(3) hydraulic engineering</li> <li>(4) highway engineering</li> <li>(5) material engineering</li> <li>(6) traffic and transportation engineering</li> <li>(7) railway engineering</li> <li>(8) maritime engineering</li> <li>(9) airport engineering</li> <li>(10) other civil engineering fields</li> </ol>
105	Construction Plant Engineer	<p>Plans, Designs and Supervises the construction, utilization, repair and maintenance of construction plants and machinery.</p>
106	Environmental Engineer	<p>Conceives, designs, appraises, directs, manages and supervises the construction of engineering works for the protection and promotion of public health and for the improvement of man's environments; investigates, improves and rectifies engineering works and other projects that are capable of injuring public health by being faulty in conception, design, direction or management.</p>

Code	Job Title	Job Description
<b>PROFESSIONAL/TECHNOLOGIST (Continued)</b>		
107	Estate Surveyor	(Job not applicable in this Survey)
108	Geotechnical Engineer	Plans, designs and supervises the construction and maintenance of geotechnical aspects of earth works and foundation works, and the development of natural resources for the construction industry.
109	Interior Designer	Plans and designs interiors and supervises interior building contracts normally within an existing building.
110	Land Surveyor	Undertakes the physical measurement of land and collates data for the preparation of plans and maps including cadastral surveying for land registration, topographical surveying, geodetic surveying and hydrographic surveying.
111	Landscape Architect	Identifies and advises on construction projects requiring landscaping and other major landscaping projects; designs landscaping; organises and supervises landscaping work; and liaises with relevant authorities and other professionals.
112	Quantity Surveyor	<p>Deals with the following aspects of building and civil engineering design and construction administration:</p> <ol style="list-style-type: none"> <li>(1) design cost and cost planning,</li> <li>(2) pre-contract documentation including bills of quantities and/or contract specifications,</li> <li>(3) tendering procedures, contractual agreements and advice on selection of tenders,</li> <li>(4) post contract services including measurement of work, preparation of interim and final payment certificates and settlement of other contractual claims.</li> </ol> <ol style="list-style-type: none"> <li>(1)</li> <li>(2)</li> <li>(3)</li> <li>(4)</li> </ol>

Code	Job Title	Job Description
<b>PROFESSIONAL/TECHNOLOGIST (Continued)</b>		
113	Safety Officer	Assists the employer of a workplace or a construction site in promoting the safety and health of persons employed therein, including the inspection of workplace, plants, equipment or works processes to identify any risks and to advise on preventive measures; investigates accidents and dangerous occurrences and makes recommendations to prevent similar accidents.
114	Structural Engineer	Engages in one or more of the following activities (This job title does not refer to a civil engineer engaged in structural engineering work): (1) investigates structural engineering problems, (2) designs and advises on structures of industrial, commercial, public and residential buildings, (3) plans and supervises their erection, maintenance and repair.  (1) (2) (3)
115	Town Planner	Prepares and implements town plans at various levels, in the form of maps and planning reports; and undertakes planning studies, for the provision of a satisfactory physical environment in the urban and rural areas with a view to promoting the health, safety, convenience and general welfare of the community.
116	Engineering Geologist	Prepare geological maps; interpret aerial photographs; undertake terrain evaluation studies; provide an engineering geological advisory service related to landslip studies, quarrying, fill resources, materials testing, emergency services; check geological aspects of works design and construction.



Code	Job Title	Job Description
<b>PROFESSIONAL/TECHNOLOGIST (Continued)</b>		
117	Quality Control/ Assurance Engineer	<p>Plans, directs and supervises all technical aspects in all phases of the building construction engineering process. Plans, supervises and co-ordinates the quality control and assurance activities to ensure materials and processes complying with standards, specifications, safety and environmental regulations, especially under the ISO-9000 and ISO-14000 series.</p> <p style="text-align: right;">ISO-9000</p> <p style="text-align: center;">ISO-14000</p>
118	Building Services Engineer	<p>Designs and advises on building services in buildings. Plans, supervises and coordinates their installation, testing, maintenance and repair. It is a multi-discipline job.</p>
<b>TECHNICIAN</b>		
201	Architectural Technician/ Draughtsman	<p>Interprets the Architect's initial design concepts and sketches into a practical building solution, and translates this information into submission/contract drawings, taking due account of the constraints imposed by economic, environmental, technological and legislative requirements; coordinates information and works of other disciplines involved including statutory bodies; assists in the checking of shop drawings and prepares site sketches for projects at construction stage; prepares from sketch designs, general and detailed drawing under the supervision of architects, engineers, surveyors or contractors.</p>
202	Assistant Safety Officer/Safety Supervisor	<p>Assists the employer and Safety Officer, where appropriate, in promoting safety and health of persons employed in a workplace or a construction site. Advises employee on safety standards, and supervises the observance of such standards for the promotion of safety at work.</p>

Code	Job Title	Job Description
<b>TECHNICIAN (Continued)</b>		
203	Civil/Structural/ Geotechnical Engineering Technician	Carries out civil/structural/geotechnical engineering work under the supervision of a civil/structural/geotechnical engineer.
204	Clerk of Works/ Inspector of Works/ Works Supervisors	Acts as the representative of the owner, inspects building and civil engineering construction works (including all maintenance works) to ensure conformity with contracts, drawings, specifications, workmanship standards and relevant legislation.
205	Construction Plant Technician	Performs tasks contributory to the design, construction, utilisation, repair and maintenance of construction plants and machinery.
206	Construction Purchaser/ Storekeeper	Purchases construction materials; plans and co-ordinates deliveries of materials to match progress; receives and despatches materials on site and ensures their security.
207	Estimator	Obtains basic data and calculates from plans and details, the probable cost of construction projects with reference to factors such as materials, labour, equipment, overheads and profit.
208	Interior Design Technician	Plans and designs, under the supervision of an interior designer, interiors normally within an existing building.
209	Laboratory Technician (Construction Materials/Soils)	Receives, documents and tests, in accordance with relevant standard specifications samples of soils, construction materials or components; prepares test reports for certification by the appropriate technologist.
210	Site Agent	Plans, organises, directs and co-ordinates all activities and resources on the construction site through sub-agents and general foremen in accordance with the agreed method, procedure, budget and specifications.

Code	Job Title	Job Description
TECHNICIAN (Continued)		
211	Site Foreman	Supervises, directs and co-ordinates normally under the general control of the site agent, the activities of workers engaged in construction works and requisitions, receives and inspects materials and supplies.
212	Surveying Technician (Building)	Assists the building surveyor in the planning, administration and co-ordination of works to buildings and land.
213	Surveying Technician (Estate)	(Job not applicable in this Survey)
214	Surveying Technician (Land)	Assists the land surveyor in carrying out surveys and setting-out work, and supervises chainmen and survey labourers.
215	Surveying Technician (Quantity)	Assists the quantity surveyor in preparing bills of quantities by performing taking-off, working-up and abstracting, and measuring and valuating completed works or variations.
216	Surveying Technician (Town Planning)	Assists the town planner in the preparation and implementation of town plans at various levels and in the undertaking or planning studies.
217	Quality Control/ Assurance Technician	<p>Performs technical tasks, normally under the direction of a quality control/assurance engineer, contributory to quality control/assurance of in-coming materials and parts, assembly process, and finished products to ensure compliance with standards and specifications, especially under the ISO-9000 and ISO-14000 series.</p> <p style="text-align: right;">ISO-9000    ISO-14000</p>

Code	Job Title	Job Description
<b>TECHNICIAN (Continued)</b>		
218	Building Services Technician/ Electrical Engineering Technician/ Mechanical Engineering Technician	Performs technical tasks, either independently or under the direction of a qualified engineer, contributory to design, installation, operation, maintenance and repair of building services systems and equipment, electrical and mechanical engineering systems and equipment. Assists to plan, coordinate and supervise their projects. This is a multi-discipline job.
219	Building Services and Engineering Supervisor	To engage mainly in decoration/renovation work and take an overseeing position.
<b>SKILLED &amp; SEMI-SKILLED WORKER</b>		
301	Asphalter (Water Proofing)	To lay sheathing felt or paint with primer where required; to pour hot asphalt or proprietary waterproofing material on prepared surfaces; to spread and level hot asphalt or proprietary waterproofing material to fit corners, skirtings, flashings and outlets, etc.  ;
302	Asphalter (Road Construction)	To mix, place and compact bituminous material using vibrating machines; to level and smoothen bituminous material according to specified level marks.
303	Bamboo Scaffolder	To erect and dismantle bamboo scaffolding required in construction, repair or decoration work; and other forms of structures.
304	Bar Bender and Fixer	To cut, bend and fix reinforcement steel bars according to drawings and bending schedules.
305	Bricklayer	To lay bricks and other building blocks, except stone and marble, for construction and repair of walls, partitions, arches, openings and other structures.

Code	Job Title	Job Description
<b>SKILLED &amp; SEMI-SKILLED WORKER (Continued)</b>		
306	Carpenter (Fender)	To remove, cut, and erect timber fenders for protection of piers, seawalls, dolphins and landing steps, etc.
307	Carpenter (Formwork)	To erect and strike timber formwork for buildings and civil engineering construction works.
308	Concrete Repairer (Spalling Concrete)	To repair substandard or spalled concrete or reinforcement bar using concrete or other approved materials.
309	Concretor	To mix, place and compact concrete using vibrating machines; to carry out curing, levelling and smoothing of concrete.
310	Construction Plant Mechanic	To maintain and repair building and civil engineering plant and machinery.
311	Curtain Wall Installer	To install metal frames, fix glass or other material panels for curtain walls.
312	Demolition Worker (Building)	To demolish, dismantle and remove buildings or structures of any part thereof.
313	Diver	To perform under-water operations related to inspection, construction and repair of structures and demolition; to prepare reports on all the foregoing operations.
314	Drainlayer	To lay and join underground drains, construct manholes, install pipes and fittings, construct beds, haunches and surrounds pipes with concrete.



Code	Job Title	Job Description
<b>SKILLED &amp; SEMI-SKILLED WORKER (Continued)</b>		
322	Joiner	To carry out all internal and external woodwork (except formwork and fender) using both hand tools and woodworking machinery.
323	Leveller	To read and interpret drawings; to set up job lines and levels and prepare templates.
324	Marble Worker	To set out, measure, cut and set marble slabs, granite slabs or similar stones on walls, floors, or other surfaces; to grind and polish marble, granite or similar stones.
325	Marine Construction Plant Operator	To operate one or more types of plant and equipment for construction at sea including derrick, boom-grab bucket and boom-hook. (This job excludes mariners such as coxswain and barge and dredger crew responsible for the operation of the vessel (in contrast with construction plant).  ( )  ( )
326	Mason	To split and shape stones, and build and lay stone works to specified thickness, patterns and shapes.
327	Metal Scaffolder	To erect, dismantle, maintain and repair metal scaffolding required in construction, repair or decoration work.
328	Metal Worker	To fit, assemble, weld and forge metal parts; to install non-structural metalwork; to operate metalworking machines; to make templates; to repair metal formwork.
329	Painter & Decorator	To prepare surfaces, fittings and fixtures of buildings and other structures for painting and decorating; to apply paints or similar protective and decorative materials; to lay out and write letters, characters and other signs.

Code	Job Title	Job Description
<b>SKILLED &amp; SEMI-SKILLED WORKER (Continued)</b>		
330	Piling Operative	To set up piling rig for driven or bored piles works, with basic knowledge of method, hand signals and geology related to piling.
331	Pipelayer	To lay water mains, make pressurised joints by mechanical means, install pipes and fittings, construct beds and haunches and surround pipes with concrete.
332	Builder's Lift Operator	To operate builders' lifts (passenger hoist) on construction site.
333	Plant and Equipment Operator (Load Shifting)  ( )	To operate one or more types of construction plant and equipment for load shifting including excavator, bull dozer, loader, mini-loader, mini-loader with attachments etc.
334	Plant and Equipment Operator (Hoist and Crane)	To operate one or more types of construction plant and equipment for material-handling purposes including crawler-mounted mobile crane, wheeled telescopic mobile crane, tower crane, truck-mounted crane, gantry crane etc.
335	Plant and Equipment Operator (Piling)	To operate piling machines for driven or bored pile works.
336	Plant and Equipment Operator (Tunnelling)  ( )	To operate one or more types of construction plant and equipment inside tunnel including tunnel boring machine, locomotive, jumbo drilling machine and segment erection machine etc.



Code	Job Title	Job Description
<b>SKILLED &amp; SEMI-SKILLED WORKER (Continued)</b>		
337	Plasterer	To apply coats of plaster to and render walls and ceilings to produce a finished surface; to screed floors, staircases and roofs.
338	Plumber	To assemble, install, repair and maintain pipes, fittings, sanitary fixtures, cold, hot and flush water systems ,and soil, waste and rain water drainage systems in buildings.
339	Rock-Breaking Driller	To operate pneumatic or hydraulic drill to make holes and openings or break up concrete, rock or other hard materials
340	Prestressing Operative	To lay and fix prestressing tendons and ducts ; to assemble prestressing couplings and anchorages and perform prestressing operation and grouting of ducts.
341	Rigger/Metal Formwork Erector	To set up lifting apparatus and equipment for lifting and lowering of materials, etc; to fix and dismantle large panel metal formwork.
342	Shotcretor	To operate spraying machines to apply shotcrete or gunite.
343	Shotfirer	To calculate, prepare, load and detonate explosive charges in mines, quarries, civil engineering and building sites.
344	Slope Maintenance Worker	To perform slope protective and stabilising works.
345	Structural Steel Erector	To drill, cut and shape steel sections; to assemble structural members and erect steel structures by riveting or bolting; to operate power shears, flame cutting equipment and other tools.
346	Structural Steel Welder	To cut or join structural steel sections including steel water mains or steel gas mains by electric arc, oxy-acetylene flame, or other welding processes.

Code	Job Title	Job Description
<b>SKILLED &amp; SEMI-SKILLED WORKER (Continued)</b>		
347	Tiler	To cut, shape and set tiles on walls, ceilings and floors to specified levels and patterns.
348	Trackworker	To lay and maintain trackworks for railways or other vehicles.
349	Truck Driver	To drive heavy vehicles or special purpose vehicles to transport construction equipment or materials, building debris or excavated materials within or into or out of construction sites .
350	Window Frame Installer	To install window frame and sash and associated water proofing work for buildings or other structures.
351	Tunnel Worker	To carry out general tunnel construction works inside tunnels including installs temporary support and working platform, ventilation duct, packer, protective fencing etc.
352	Asbestos Abatement Worker	To carry out asbestos abatement works.
353	Hand-dug Caisson Worker	To construct building foundation by hand-dug caisson method.
354	Paving Block Layer	To lay paving blocks on floor; to compact the base layer with vibrating machines; to cut paving blocks to fit floor layout. ;
355	Plant and Equipment Operator (Suspended Working Platform)  ( )	To operate suspended working platform for carrying persons.

Code	Job Title	Job Description
<b>SKILLED &amp; SEMI-SKILLED WORKER (Continued)</b>		
356	Plant and Equipment Operator (Demolition)	To operate powered mechanical plant or equipment in demolition works including crane, pneumatic breaker and hammer mounted on backactor etc.
357	Demolition Worker (Unauthorized Building Work) ( )	To demolish, dismantle and remove unauthorized building works.
<b>GENERAL WORKER</b>		
401	Chainman	To assist the land surveyor or surveying technician in carrying out survey work in the field; to undertake the care, transport and safeguard of all types of survey equipment.
402	Concreting Labourer	To transport mixed concrete using wheel barrows or other equipment and to perform general duties during pouring of concrete.
403	Diver's Linesman	To assist the diver and be responsible for communicating with the diver in diving.
404	Excavator	To perform manual excavation work.
405	Heavy Load Labourer	To lift, handle and transport heavy objects on site using mainly physical strength; generally requiring little skill other than basic manual lifting and handling techniques.
406	Labourer	To perform simple duties as directed by the tradesman, general cleaning or minor excavation work.
407	Sewerman	To carry out sewer/drain tracing and flow sampling; gauges, to inspect, desilt and clear sewers/drains.