Electrical and Mechanical Services Training Board

Manpower Update Report

Electrical and Mechanical Services Industry

2024

ACKNOWLEDGEMENT

The Electrical and Mechanical Services Training Board (EMTB) would like to express its gratitude to the focus group members for their valuable time and insights into the manpower situation in the Electrical and Mechanical (E&M) Services industry. Special thanks go to CPJobs and CTgoodjobs who shared with us their job vacancy database. The views of focus group members and information from major recruitment portals such as JobsDB, Recruit and Interactive Employment Services of the Labour Department formed an integral part of this report.

Contents

Introduction

Background

The EMTB of the Vocational Training Council (VTC) is appointed by the HKSAR Government. According to its Terms of Reference, the EMTB is responsible for determining the manpower demand of the E&M Services industry, assessing whether the manpower supply matches the manpower demand, and recommending to the VTC the development of vocational and professional education and training (VPET) facilities to meet the assessed training needs.

Since 2017, VTC's Training Boards have adopted a four-year cycle approach for collecting manpower information, with a view to enhancing the effectiveness and better reflecting the dynamics of the manpower situation in industries.

Each four-year cycle consists of one full manpower survey and two manpower updates. The full manpower survey collects companies' manpower data through questionnaires, whereas the manpower updates rely on desk research and focus group meetings.

For the four-year cycle covering April 2021 to March 2025, the EMTB completed its full manpower survey in 2021 and conducted its manpower update in 2023. This report presents the findings of the 2023 manpower update and the EMTB's recommendations to the Government, employers and educational institutions.

The contents of this manpower update report are based on two information sources:

(a) focus group meetings to collect industry experts' views on the latest industry development, its manpower and training needs, recruitment and retention difficulties, and suggested solutions to the challenges; and

(b) desk research to analyse recruitment advertisements, including the qualifications and experience required for principal jobs in the industry.

Objectives

The objectives of manpower update are:

(i) to examine the latest trends and development in the industry;

(ii) to explore the job market situation and training needs;

(iii) to identify recruitment and retention challenges; and

(iv) to recommend measures to meet training needs and ease manpower shortage.

Methodology

Overview

This manpower update report aims to provide qualitative descriptions of recent developments in the E&M Services industry through focus group meetings, supplemented by quantitative findings from desk research.

Focus Group Meetings

Two focus group (FG) meetings were held on 30 November and 1 December 2023. 16 representatives from different sectors of the E&M Services industry, including trade associations, employers, consultant firms and workers' unions, participated in the meetings.

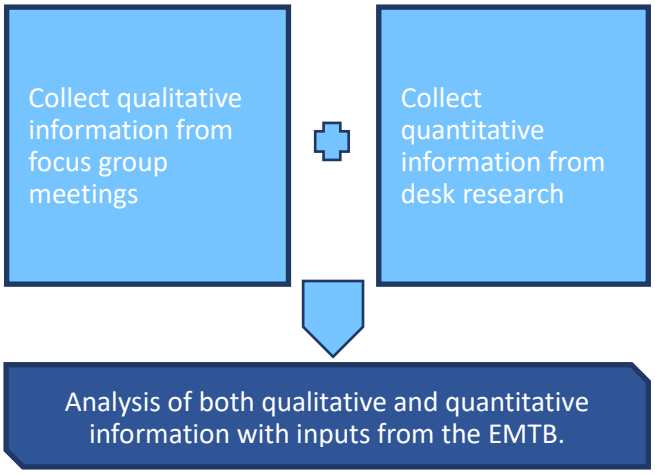
The EMTB Secretary led FG members through in-depth discussions on topics selected by the Working Party on Manpower Survey of the EMTB. The discussions were recorded and transcribed to facilitate analysis.

Desk Research

An employment information system was developed to capture recruitment advertisements from CPJobs, CTGoodJobs, JobsDB, Recruit and Interactive Employment Services of the Labour Department and other online recruitment portals. Around 980,000 records were collected between January 2022 and December 2023 for all industries. After de-duplication [1] and a mapping process based on the company list under the Hong Kong Standard Industrial Classification, some 26,500 records relevant to the principal jobs in the E&M Services industry were identified. These records were further grouped by skill levels including professional/technologist, technician, tradesman/craftsman, and semi-skilled/general worker to facilitate further analysis.

Data Analysis

The desk research analysis consists of the following three steps:



[1] Duplicate records are those advertisements with the same company, job title and contents within the past 30 days.

Limitations

Unlike traditional manpower surveys where quantitative data are collected through questionnaires, the findings of manpower updates rely on focus group meetings and desk research, which are more qualitative in nature. Hence, the manpower update reports focus mainly on manpower trends.

At present, desk research relies on job advertisements collected from recruitment portals. The coverage is definitely not exhaustive as other recruitment channels such as social media and referrals from friends, are not included. As a result, a clear correlation between the number of recruitment advertisements found and the number of employees recorded in the full manpower survey could not be identified.

In addition, the data collected is a snapshot of a particular period without reference to historical data. Hence, the findings of desk research should be treated as a reference only. They should not be directly compared with the full manpower survey figures.

Findings

Factor Affecting the Development of the E&M Services Industry

During the focus group meetings, members exhaustively discussed various factors that affected the development of the E&M Services industry. These factors including the post-COVID-19 era, technology, government policy, and environmental, social and governance (ESG) are summarised in the ensuing paragraphs.

Post-COVID-19 Era

The COVID-19 pandemic severely impacted Hong Kong's economy, affecting various industries, including the E&M Services industry. As the pandemic subsided and Hong Kong fully reopened, economic activities have begun to recover.

As a result of the pandemic, many construction projects have been rushing to catch up on their progress. Together with government infrastructure initiatives and private construction projects underway, E&M engineering services are in high demand.

In addition, there are approximately 44,250[2] private buildings in Hong Kong. Among them, some 27,000[3] are over 30 years old. Consequently, many of these buildings require replacement or modernisation of building facilities, such as lifts, lighting, fire alarm and appropriate E&M systems. This has also led to a considerable increase in manpower demand in the E&M engineering sector.

After Hong Kong returned to normalcy, the railway sector returned to its regular train schedules and frequencies. This resulted in a noticeable rise in E&M wear and tear, highlighting the need to replace aging components. A proficient workforce is required for efficiently repairing and maintaining these components to ensure smooth and reliable railway services.

Electricity and gas services demand remained relatively stable before and after the pandemic. However, there has been a noticeable increase in household electricity and natural gas consumption due to changes in citizens' lifestyles, particularly during peak hours. The shift in peak hours compared to pre-pandemic times has prompted the sectors to enhance their efforts in maintaining and updating systems to ensure quality and stable services. Anticipating future government initiatives to increase housing supply and infrastructure development as well as the renewal energy policy, the sector is expected to continue its growth.

[2,3] Figures captured from the "Polices on Improving Building Management and Operation of Owners' Corporation in Selected Places" published by the Research Office of Legislative Council Secretariat in 2022.

The aviation industry suffered a severe setback during the COVID-19 pandemic. With Hong Kong fully reopened, the aviation sector has recovered. The Hong Kong International Airport traffic has recovered to approximately 80% of pre-pandemic levels, benefiting the aircraft maintenance sector. The full utilisation of all three runways at the airport is expected to accommodate more flights and passengers in the second half of 2024. This will result in an increase in demand for aircraft maintenance services.

Technology

Modular Integrated Construction

Modular Integrated Construction (MiC) represents an innovative approach to construction, involving factory assembly of building components followed by on-site installation, expediting the construction timeline. While MiC adoption is prevalent among government and large-scale developers' projects, some small to medium-sized developers are not yet fully equipped with the necessary resources and manpower, though MiC is considered a growing trend.

On another note, MiC has a notable impact on E&M engineering professionals involved in traditional construction methods, leading to changes in their processes and technical knowledge. Since most MiC components are currently manufactured in Mainland China, the absence of a standardised approach poses challenges, as often the standards in Mainland China differ from those in Hong Kong, requiring extensive communication efforts.

At present, sub-contractors often rely on main contractors to drive and implement MiC projects due to manpower and technical challenges. The manpower challenges faced by sub-contractors in MiC projects is the need for highly skilled and specialised engineers.

The MiC approach necessitates that E&M workers acquire additional proficiencies in E&M installations and assembly, as these skills are becoming imperative for the future. Furthermore, considering the evolving landscape, it is possible that trade tests for registered electrical workers may encompass these specific areas of expertise.

Building Information Modelling

In recent times, the adoption of Building Information Modeling (BIM) in building design and construction has increased, following the Government's roadmap issued in December 2023 for the full integration of BIM in the preparation and approval of building plans for private development projects. Notably, a significant portion of engineering firms delegate BIM drawings to draftsmen who often lack a comprehensive understanding of the entire project compared to engineers. On the other hand, engineers proficient in BIM drawings are scarce, and those with the skills often lack the time to complete the task. Consequently, many BIM drawings lack careful consideration and are frequently revised during on-site construction. This approach is proven impractical for projects involving MiC or Design for Manufacturing and Assembly (DfMA), as these need to be precisely planned during the design stage for factory production. Additionally, due to manpower constraints, many engineering

companies outsource their BIM drawing work to Mainland China firms, primarily driven by cost considerations.

Smart, Virtual Reality and Augmented Reality Technologies

Hong Kong is at the forefront of smart city endeavours, proactively integrating intelligent features into architectural developments. New buildings are making extensive use of smart technology, such as the Internet of Things (IoT) to drive automation, facilitate data collection and analysis, and elevate the overall experience for residents. For instance, building systems, such as security systems, air conditioning systems, lighting systems, and fire systems, have incorporated IoT to enable 24-hour monitoring and enhance efficiency.

Furthermore, the E&M engineering sector embraces cutting-edge technology and innovative solutions to tackle workforce shortages. Virtual reality (VR) and augmented reality (AR) technologies, for instance, allow remote inspections and troubleshooting, reducing the need for a physical presence on-site. This shift towards tech-driven solutions not only enhances operational efficiency but also underscores a growing demand within the industry for professionals well-versed in these advanced technologies.

Environmental, Social and Governance

Hong Kong has placed a growing emphasis on Environmental, Social and Governance (ESG) initiatives to champion sustainable development, ethical business conduct, and transparent corporate governance. Within the E&M Services industry, companies are embracing ESG principles, aligning themselves with global sustainability objectives and playing a part in cultivating a more conscientious and robust economy. However, many organisations are in the initial stages, setting preliminary targets and providing basic ESG training for employees.

Government Policy

Occupational Safety

As mentioned earlier, some construction projects delayed due to the pandemic have been rushing to catch up, coupled with a surge in upcoming projects. In this scenario, occupational safety is often overlooked by construction and engineering workers. Recently, there have been several serious industrial accidents, prompting stringent oversight by the government on occupational safety. Small to medium-sized developers and sub-contractors experience certain pressures due to resource constraints to comply with stringent occupational safety requirements. The industry indicates a current shortage of sufficient safety officers; hence, individuals are encouraged to take up the safety officer role after completing courses even if they work in other capacities. Due to an increase in accidents and strict penalties, these individuals are declining.

Carbon Neutrality

In the 2020 Policy Address, the Chief

Executive announced Hong Kong's ambitious commitment to carbon neutrality before 2050. This visionary policy is a catalyst for transformation within the E&M Services industry, particularly as power companies undergo a gradual shift from traditional coal-based to renewable energy generation. This evolution signals a pivotal moment for existing engineering and technical professionals, prompting the need for significant adjustments to knowledge transfer and training.

Moreover, the Government's proactive stance on promoting electric vehicles (EV) as a sustainable alternative to traditional gasoline and diesel cars is reshaping the urban landscape. The widespread adoption of this initiative requires the installation of a substantial number of EV charging stations in diverse locations. Especially in older establishments, electric vehicle charging facilities require substantial modifications, amplifying the demand for skilled E&M engineering professionals.

Looking ahead, the Government envisions a transformative phase where hydrogen emerges as a key player in energy generation and transportation. This forward-looking shift anticipates a substantial demand for professionals possessing expertise in harnessing hydrogen's potential across these evolving sectors.

Importation of Labour

The Government initiated the labour importation scheme for various sectors including the construction sector to address the temporary manpower gap, preventing bottlenecks in Hong Kong's economic and infrastructure development. The E&M Services industry has also considered a similar approach to address the manpower shortage. However, it faces technical challenges such as higher costs for imported labour, including wages, insurance, and accommodation, compared to local workers. Ideal solutions involve accommodating foreign workers near the Hong Kong border for daily commuting, but this is limited to jobs in construction site. For E&M maintenance services which require shift work, such arrangement is impractical. Overall, importing labour is seen as a short-term measure, and a more sustainable solution involves long-term training initiatives and attracting young individuals to join the industry.

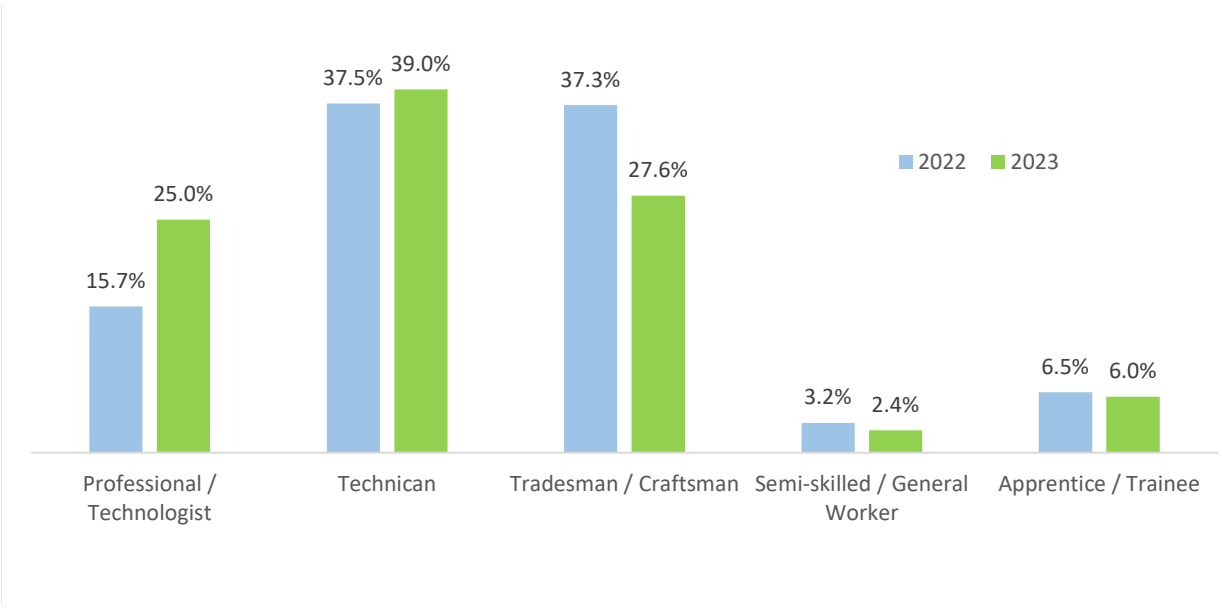
Manpower Demand

The desk research collected some 12,500 and 14,000 job advertisements related to the E&M Services industry from January to December 2022 and January to December 2023 respectively, accounting for a 10.4% increase.

The E&M engineering sector dominated approximately 96% of advertisements within the industry, while the gas sector and the aircraft maintenance sector each contributed 2%.

The distribution of job advertisements for skill levels of professional/technologist, technician, tradesman/craftsman, and semi-skilled/general workers in 2023 was 25%, 39%, 27.6%, and 2.4%, respectively. In contrast, the distribution of the same skill levels in 2022 was 15.7%, 37.5%, 37.3%, and 3.2%, respectively. In addition, advertisements for apprentices/trainees contributed 6.0% in 2023 and 6.3% in 2022. The distribution of job advertisements in 2022 and 2023, by skill level, is shown in **Figure 1**.

Figure 1 Distribution of Job Advertisements in 2022 and 2023, by Skill Level



The E&M Services industry exhibits substantial workforce demands across different sectors encompassing skill levels from professional/technologist to semi-skilled/general workers. Compared to 2022, advertisements for engineering managers and engineers at the professional/technologist skill level respectively surged by 357% and 141% in 2023. At the technician skill level, there was an increase of 300% and 140% in advertisements for graduate engineers and supervisors, respectively. For foremen/chargehands and carpenters at the tradesman/craftsman skill level, recruitments respectively rose by 73% and 63%. Furthermore, semi-skilled/general worker jobs spiked by 289%. The top ten increased advertisements in 2023 over 2022, by principal job, are shown in **Table 1**.

Table 1 The Top Ten Increased Advertisements in 2023 over 2022, by Principal Job

Top	Principal Job	Skill Level	Advertisements Increased in 2023 over 2022
1.	Engineering Manager	Professional/Technologist	357%
2.	Graduate Engineer	Technician	300%
3.	Semi-skilled Worker	Semi-skilled/General Worker	289%
4.	Labourer	Semi-skilled/General Worker	142%
5.	Engineer	Professional/Technologist	141%
6.	Supervisor	Technician	140%
7.	Assistant Engineer/ Assistant Engineering Manager/ Assistant Safety Officer	Technician	125%
8.	Foreman/Chargehand	Tradesman/Craftsman	73%
9.	Safety Officer	Professional/Technologist	71%
10.	Carpenter	Tradesman/Craftsman	63%

The top five most in-demand jobs in 2022 and 2023 are listed in **Table 2**. Compared to the data collected in 2022, four in-demand jobs appeared in both collection periods but with supervisor replacing fitter in 2023. The detailed desk research results are shown in the **Appendix**.

Table 2 The Top Five Most In-demand Jobs

Top	2022		2023	
	Principal Job	Skill Level	Principal Job	Skill Level
1.	Mechanic	Tradesman /Craftsman	Engineer	Professional /Technologist
2.	Technician	Technician	Assistant Engineer / Assistant Engineering Manager / Assistant Safety Officer	Technician
3.	Engineer	Professional /Technologist	Technician	Technician
4.	Assistant Engineer/ Assistant Engineering Manager/Assistant Safety Officer	Technician	Mechanic	Tradesman /Craftsman
5.	Fitter	Tradesman /Craftsman	Supervisor	Technician

Training Needs

BIM

Employers recognise BIM drawing as a fundamental skill that students in E&M engineering-related programmes should proficiently master. This acknowledgment underscores the increasing importance of BIM in the industry. Employers express a strong desire for their engineers to acquire the latest BIM knowledge and skills. The emphasis on acquiring advanced BIM competencies reflects the industry's commitment to staying at the forefront of technological advancements. This ensures a highly skilled workforce capable of meeting the evolving demands of the E&M Services industry.

Smart, VR and AR Technologies

The prevalence of smart, VR and AR technologies has witnessed a significant upswing within the E&M Services industry, marking a transformative shift in the industry landscape. As these technologies gain popularity, it becomes imperative to integrate them into the training programmes. This inclusion ensures that aspiring professionals not only grasp the conventional aspects of the field but also acquire proficiency in leveraging cutting-edge smart technologies.

MIC, Design for Manufacture and Assembly, Multi-trade integrated Mechanical, Electrical & Plumbing

MiC, DfMA, Multi-trade integrated Mechanical, Electrical & Plumbing (MiMEP) represent an innovative approach to construction, involving factory assembly of building components followed by on-site installation, ultimately expediting the construction timeline. These cutting-edge construction technologies are a trend in construction that changes the traditional E&M installation process work flow. Existing E&M engineering practitioners and potential talents should be trained to adapt to this advancing technology. Relevant training elements should be included in E&M engineering-related pre-employment and post-employment training programmes.

Multi-Skills

Traditionally, E&M engineering professionals focus on specific domains. However, as technology and the industry continue to advance, these experts need to cultivate a versatile skill set capable of addressing a spectrum of scenarios. For example, engineers now require proficiency in BIM, energy efficiency, and innovative thinking. Similarly, technicians are expected to augment their capabilities with additional expertise to meet the evolving demands of the industry.

New Energy Technology

Climate change affects regions worldwide, including Hong Kong. The Hong Kong

Government has devised a carbon neutrality blueprint to reduce carbon emissions. This blueprint incorporates measures like the gradual transition to renewable energy in lieu of coal-based power generation and the adoption of hydrogen vehicles and EV to replace traditional fuel-powered ones. To align with these advancements, existing E&M equipment in premises will be upgraded, for example, by installing EV charge system and solar photovoltaic system. Consequently, mechanical and electrical engineering professionals must acquire knowledge of the installation, maintenance, and servicing of pertinent equipment to meet evolving environmental standards.

Workplace Safety

Recently, there has been a disconcerting surge in the frequency of severe industrial accidents, signaling a growing concern about workplace safety. The pressures of meeting tight deadlines and seeking convenience have led many construction workers to inadvertently neglect crucial industrial safety measures. This not only places construction and E&M personnel at substantial risk but also creates a discouraging atmosphere for newcomers entering the industry, impacting their enthusiasm and overall job satisfaction. The ramifications of these safety lapses extend beyond immediate dangers, affecting the industry's reputation and long-term sustainability. It is imperative to recognise that a commitment to industrial safety safeguards lives but also contributes to construction projects' productivity and success. As such, it is exigent to instill a culture of safety consciousness within and provide relevant training to the workforce.

Recruitment and Retention Challenges

Like many other industries, the E&M Services industry is grappling with challenges related to manpower shortages, an aging workforce, and a lack of young talent entrants. The following summarises some of the key issues in this regard.

Emigration

In the past three years, Hong Kong has experienced a significant surge in emigration. According to the British Home Office's statistics, it has been estimated that approximately 135,400 people have emigrated to the United Kingdom from Hong Kong in the past three years. Among them, 69% held degrees or higher qualifications, while 39% were professionals and the majority of immigrants were aged 25 to 39. This exodus reflects a substantial loss of industry professionals in Hong Kong, contributing to a shortage of skilled labour. Although the peak of emigration has passed, there continues to be a considerable monthly outflow.

With policy changes in Australia and Canada transitioning from investment immigration to skilled immigration, it is anticipated that this shift will impact the mid-level and engineering workforce within the industry. The consequences of these migration patterns are multifaceted, influencing not only the current manpower shortage but also potentially shaping the industry's skill composition in the long term.

Aging Workforce

Due to a shortage of manpower, a high turnover rate and a lack of younger individuals entering the industry, many seasoned practitioners who originally intended to retire around 60 to 65 years old find themselves working until 70 or beyond. Presently, some elderly masters in their seventies are still actively involved in their work. The aging issue is particularly pronounced in the E&M engineering sector, posing significant challenges to workforce sustainability. The Census and Statistics Department projected that the elderly persons aged 65 and over will increase from 20.5% in 2021 to 36.0% in 2046. This means the overall workforce will age further, and the E&M industry is not an exception.

Reluctance to Join the Industry

The younger generation shows less interest in joining the E&M Services industry. Even if they enter the industry, it tends to be short-term, leading to high turnover rates. Their reluctance is often rooted in reservations about the work environment, particularly when it involves fieldwork or handling machinery.

The long work experience requirement for E&M licenses creates a considerable hurdle for many young individuals. Meeting these

prerequisites within the timeframe becomes a daunting challenge. Moreover, a job like working on towering structures or intricate machinery further exacerbates apprehensions, dissuading both youngsters and their parents from pursuing these careers. In addition, maintenance work, which entails periodic shifts, remains generally unpopular, adding to workforce recruitment complexities in the sector.

Competing for Talents

While the Government has introduced a comprehensive set of measures to actively attract talent from around the world to strengthen Hong Kong's workforce, other countries are also implementing proactive policies to attract skilled individuals. This could potentially pose additional challenges for the Hong Kong workforce. For example, a considerable number of E&M engineering practitioners have relocated to Macao to undertake projects, enticed by the advanced and innovative building facilities that provide access to cutting-edge technology.

RECOMMENDATIONS

In order to align with the industry's future growth, collaborative efforts among government, employers and educational institutions are imperative to enhance the industry's appeal to the younger generation. It is crucial to jointly promote career prospects, and concurrently, ensure the availability of relevant training opportunities for students and in-service practitioners. This will enable them to stay abreast of the industry developments. To realise these objectives, consider the following recommended measures:

Government and E&M Services Industry

Shaping the Industry's Image

An industry's image plays a significant role in attracting young professionals. Many young people and their parents mistakenly perceive the industry as predominantly blue-collar, with work conditions and safety standards deemed subpar compared to white-collar professions, leading to hesitancy in pursuing careers within it. The Government and E&M Services industry should collaborate together to enhance its public image. Taking the Electrical and Mechanical Services Department as an example, recent efforts to improve its image have resulted in an increased influx of young individuals joining the organisation.

Mutual Recognition of Academic Qualifications between Hong Kong and Mainland China

In recent years, the Government has introduced various schemes such as the "Talent Import Scheme" and "Enhanced Supplementary Labour Scheme", aiming to augment the local workforce across different industries. Within the E&M engineering sector, many practitioners require specific licenses for employment, with academic qualifications and work experience being the prerequisites for obtaining these licenses. The Government and education institutes should promote mutual recognition of academic qualifications between Hong Kong and Mainland China. For instance, the Hong Kong Institute of Construction has recognised students with Mainland qualifications to apply for its training programmes. This could play a significant role in facilitating the hiring of Mainland labour and specialists in this sector.

Promotion of the E&M Services Industry

Over the past few years, the younger generation was encouraged to engage in entrepreneurship and innovative technology. It is imperative for the Government and industries to adopt a more comprehensive approach to promoting these foundational industries, including the E&M Services industry. This will capture the interest of the younger demographic, ensuring a well-rounded and inclusive strategy for fostering industry growth.

Unleashing Women Workforce

There has been a noticeable surge in women's inclusion in the E&M Services industry, marked by increased enrollment in engineering-related programmes and active participation as apprentice engineers. However, a significant number of women encounter obstacles to securing employment due to familial obligations, posing a challenge to their ability to work beyond their homes. To address this issue, the Government should implement tailored measures that support women in overcoming these challenges, facilitating their integration into the workforce and contributing to the expansion of the overall labour force.

Strengthening the Vocational and Professional Education and Training Promotion

The Government should strengthen the promotion of Vocational and Professional Education and Training (VPET) to address industries' manpower demands. VPET equips individuals with practical skills, fostering a workforce that meets industry needs. Additionally, VPET offers an alternative path for those not pursuing traditional academic routes, fostering inclusivity and addressing the varied talents and aspirations within the population, ultimately contributing to a more resilient and dynamic society.

Employers

Leveraging Advance Technology

In today's swiftly advancing technological landscape, employers should optimise work processes and boost construction efficiency by harnessing technology, ultimately lightening the workload for their employees. As an illustration, engineering professionals faced with substantial paperwork requirements during project execution can significantly simplify these tasks by transitioning to digital workflows. This not only accelerates processes but also aligns with the broader trend of digital transformation in various industries.

Leveraging Government Funding Schemes

Training employees not only engages them in skill enhancement, increases productivity, and improves adaptability to change but also provides a competitive advantage. Employers should actively encourage and support employee training. In fact, employers can take advantage of Government schemes such as the Engineering Graduate Training Scheme, New Industrialisation and Technology Training Programme, Vplus Subsidy Scheme and Skills Upgrade Scheme Plus to provide more training opportunities for their employees. This proactive approach not only benefits individual employees but also strengthens the overall competitiveness of the organisation in the market.

Leveraging the Recognition of Prior Learning

The Recognition of Prior Learning (RPL) mechanism under the Qualifications Framework (QF) acknowledges practitioners' work experiences and competencies in their professional settings. This alternative route allows practitioners to attain QF-recognised qualifications without formal academic training. Therefore, employers should encourage experienced yet academically underserved employees to pursue formal qualifications through the RPL mechanism, enabling them to engage in higher-level educational programmes and pursue life-long learning. This approach not only acknowledges their rich professional experiences but also facilitates their educational and career advancement.

Offering Industrial Attachments for Students

Participating in an industrial attachment extends beyond the classroom, offering students a first-hand immersion into the operational intricacies of the E&M Services industry. This experience provides students with invaluable hands-on knowledge that complements their academic learning. Simultaneously, for employers, this period acts as a golden opportunity to identify emerging talents who not only showcase relevant skills but also demonstrate adaptability essential for seamless integration into the industry's dynamic workforce. Recognising the mutual benefits, employers should extend more opportunities for students to undertake industrial attachments, fostering a symbiotic relationship between academic learning and real-world industry exposure.

Awareness of Occupational Safety

As a response to the surge in occupational accidents lately, the Government has intensified its inspections of construction sites. However, these inspections often adhere to predetermined routes and procedures, which may not truly reflect the real situation at construction sites. While surprise checks are considered one approach to gaining insight into actual construction conditions, frequent inspections could potentially disrupt construction progress. The most effective approach lies in fostering a safety culture and environment among main contractors and sub-contractors to mitigate industrial accidents. Being consistently prepared for inspections is paramount in this regard.

Educational Institutions

Changing Parents' Perception of the E&M Services Industry

It is evident that parental influence has an impact on students' choice of career. Hence, it becomes crucial not just to acquaint students with the E&M Services industry but also to actively engage and promote it to parents. This concerted effort aims to cultivate a deeper understanding that the industry holds significant promise, dispelling prevalent misconceptions among them. To achieve this, educational institutions should forge stronger collaborations with industry professionals, arranging informative sessions such as school talks, parent talks, and site visits. These initiatives aim to offer comprehensive insights and enhance the awareness and understanding of the industry for students, parents and stakeholders.

Equipping Students with Multi-Skills

In the ever-evolving terrain of today's job market, versatility and adaptability act as gateways to a myriad of opportunities. Providing students with a broad spectrum of skills extends beyond merely enhancing their employability; it establishes them as invaluable assets in the swiftly evolving professional landscape. In an epoch characterised by technological strides and shifts in the industry, the ability to adapt takes center stage. Education institutions should equip students with a set of generic skill such as problem-solving skills, critical thinking skills, and communication skills that can effortlessly navigate transitions between tasks and wholeheartedly embrace change, rendering them indispensable contributors to any workplace. Additionally, students with broad technical knowledge in areas such as programming, data analysis, and proficiency with computer-aided design software will be able to cope with the technological transformation of the industry.

Including Smart, VR and AR Technologies in Programme Curricula

Smart, AR and VR technologies have become a defining trend within E&M engineering systems. As technologies transform, it is essential for education institutions to incorporate these technologies into pre-employment and post-employment training programme curricula. This proactive approach ensures that students not only grasp the theoretical foundations but also acquire the hands-on skills and in-depth knowledge required to adeptly navigate and leverage these cutting-edge advancements.

For instance, VR simulations can aid engineers in virtual prototyping and testing of electrical systems, allowing them to visualise and interact with designs before physical implementation. AR can be used for real-time data overlay during equipment maintenance or repair, providing technicians with contextual information.

Equipping Students with Updated Knowledge of BIM, DfMA and MiC

Embracing the evolution of construction methodologies, the E&M Services industry is increasingly leaning towards the adoption of cutting-edge construction technology practices like BIM, Design for DfMA, and MiC. This transformative trend signifies a paradigm shift in how projects are conceptualised and executed. To prepare future professionals for this dynamic landscape, educational institutions should engage students with updated knowledge of new construction technology, not only impart theoretical understanding but also equip students with the hands-on knowledge and practical skills essential to navigate and implement these cutting-edge technologies and methodologies effectively.

Desk Research Results

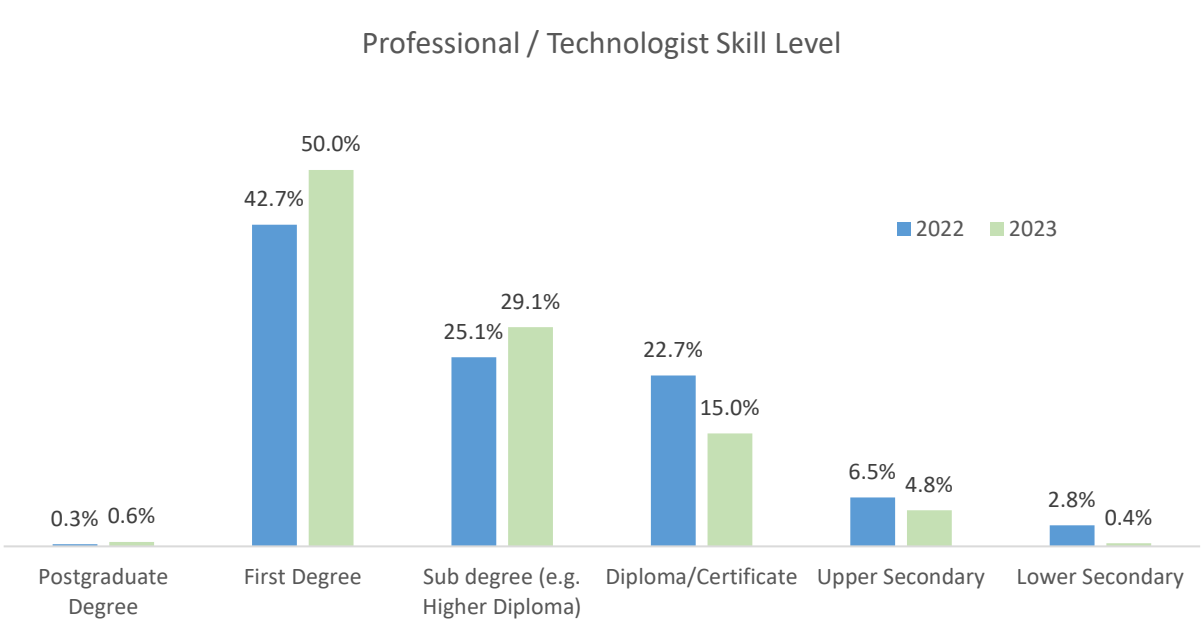
1. The Distribution of Job Advertisements in 2022 and 2023, by Skill Level and Principal Job

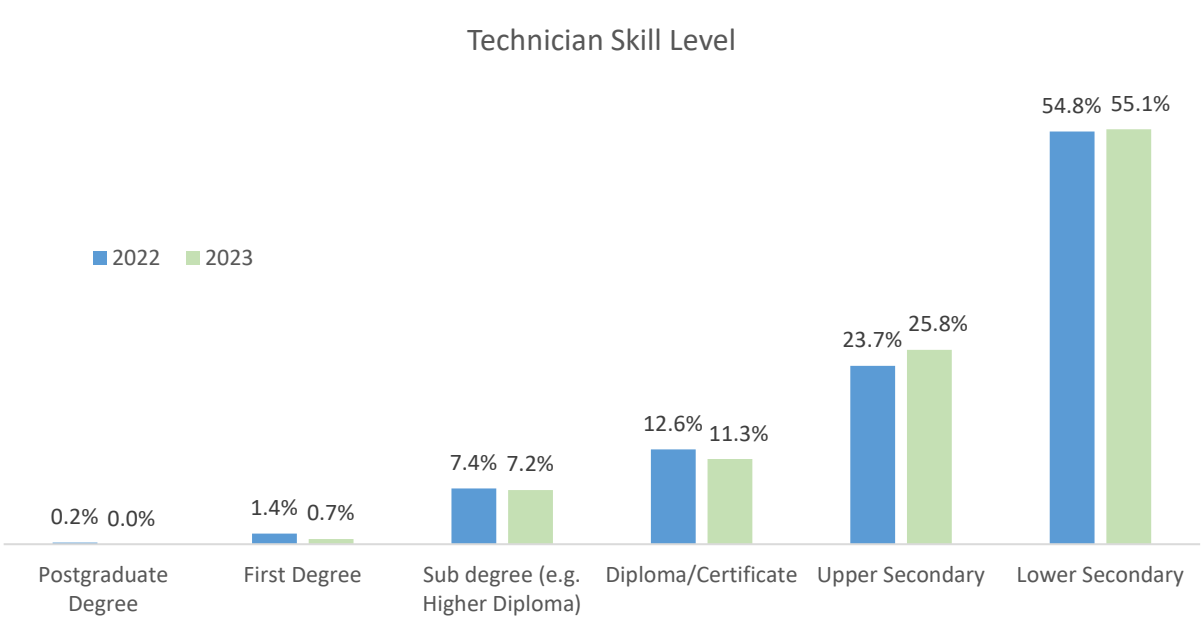
Skill Level/Principal Job	2022	2023
Professional/Technologist Level		
Engineer	13.7%	22.2%
Safety Officer	1.3%	1.5%
Engineering Manager	0.3%	0.9%
Technologist	0.5%	0.3%
Technician Skill Level		
Technician	25.2%	19.9%
Assistant Engineer/Assistant Engineering Manager/ Assistant Safety Officer	8.8%	13.3%
Supervisor	2.8%	4.6%
Draughtsman	0.4%	0.4%
Graduate Engineer	0.3%	0.8%
Tradesman/Craftsman Level		
Mechanic	27.1%	18.4%
Fitter	3.8%	3.5%
Artisan	2.1%	2.1%
Foreman/Chargehand	0.9%	1.1%
Assistant Supervisor/Technical Assistant	0.9%	0.8%
Carpenter	0.6%	0.6%
Painter	0.9%	0.4%
Welder	0.4%	0.3%
Linesman	0.5%	0.2%
Craftsman	0.2%	0.1%
Semi-skilled/General Worker Level		
General Worker	2.8%	1.8%
Labourer	0.3%	0.4%
Semi-skilled Worker	0.1%	0.3%
Apprentice/Trainee Level		
Apprentice	4.0%	2.8%
Trainee	2.3%	3.3%
Total	100%	100%

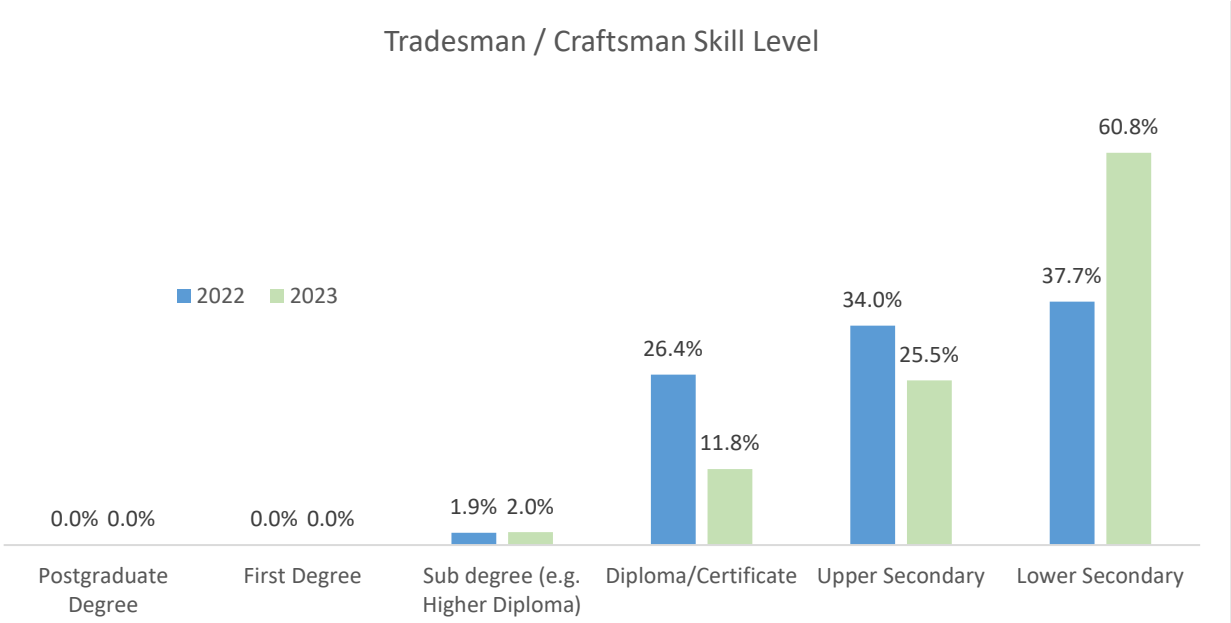
2. The Increase/Decrease of Job Advertisements in 2023 over 2022, by Skill Level and Principal Job

Skill Level/Principal Job	Increase/Decreased of recruitment ads in 2023 over 2022
Professional/Technologist Level	**+136%**
Engineer	+141%
Safety Officer	+71%
Technologist	+2%
Engineering Manager	+375%
Technician Level	**+54%**
Technician	+17%
Assistant Engineer/Assistant Engineering Manager/ Assistant Safety Officer	+125%
Supervisor	+140%
Draughtsman	+45%
Graduate Engineer	+300%
Tradesman/Craftsman Level	**+10%**
Mechanic	+1%
Fitter	+36%
Artisan	+50%
Assistant Supervisor/Technical Assistant	+39%
Painter	-26%
Foreman/Chargehand	+73%
Carpenter	+63%
Linesman	-34%
Welder	34%
Craftsman	-47%
Semi-skilled/General Worker Level	**+13%**
General Worker	-8%
Labourer	+142%
Semi-skilled Worker	+289%
Apprentice/Trainee Level	**+13%**
Apprentice	+4.0%
Trainee	+110%
Total	**+48%**

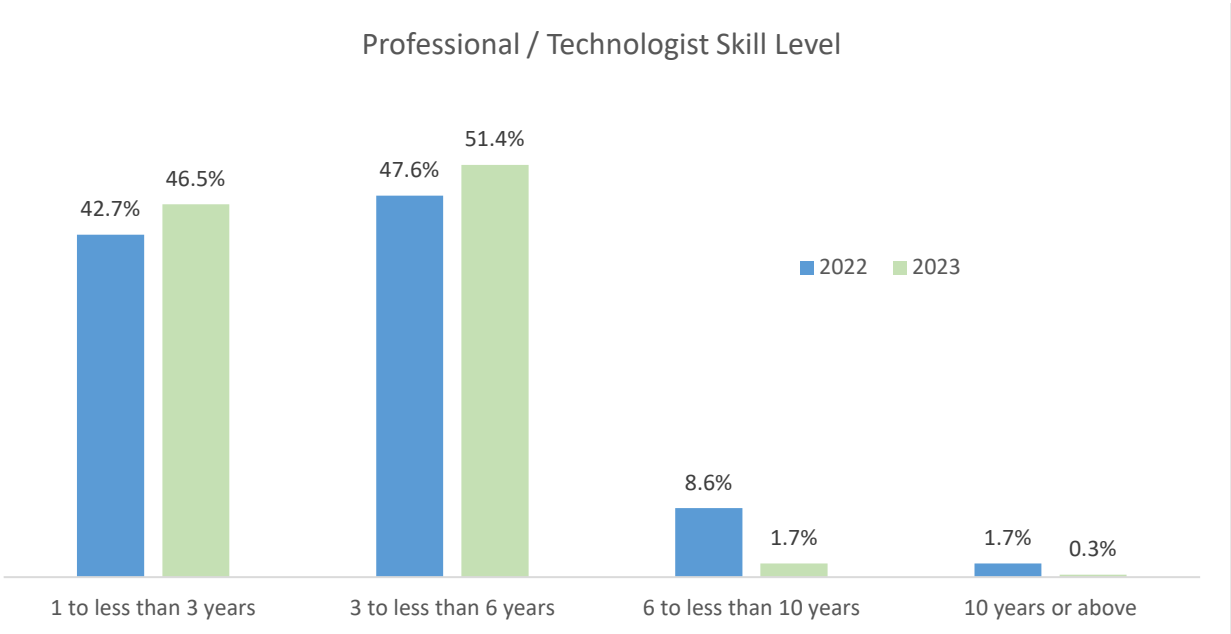
3. Preferred Education Level in Job Advertisements in 2022 and 2023, by Skill Level

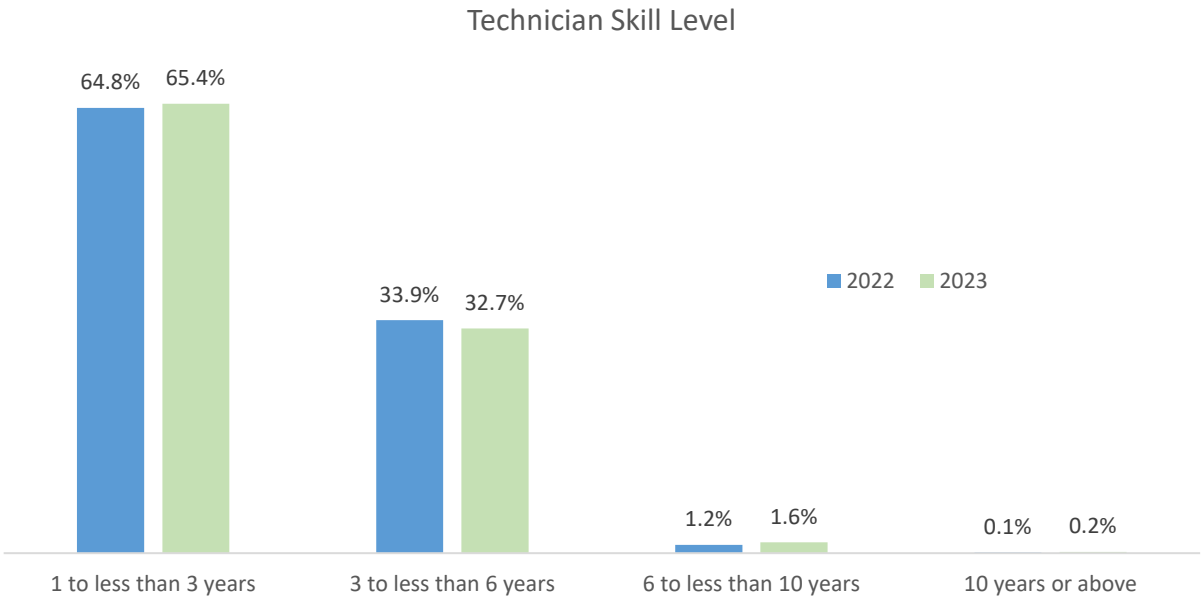


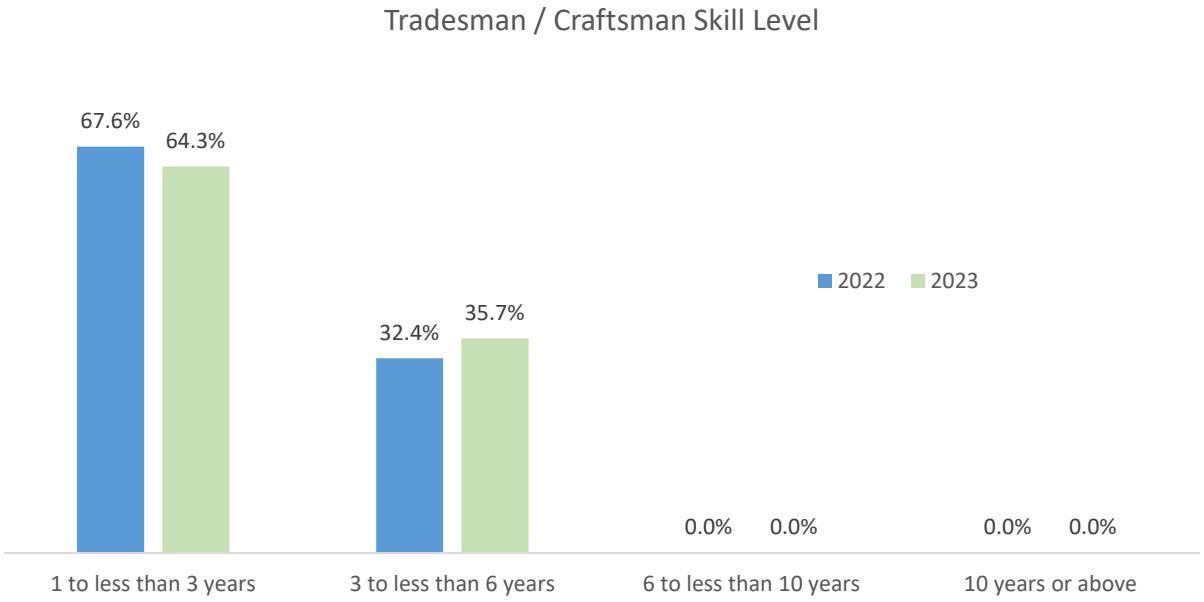




4. Preferred Work Experience in Job Advertisements in 2022 and 2023, by Skill Level




Technician Skill Level
64.8%
65.4%
33.9%
32.7%
1.2%
1.6%
0.1%
0.2%
2022
2023
1 to less than 3 years
3 to less than 6 years
6 to less than 10 years
10 years or above


Tradesman / Craftsman Skill Level
67.6%
64.3%
32.4%
35.7%
0.0%
0.0%
0.0%
0.0%
2022
2023
1 to less than 3 years
3 to less than 6 years
6 to less than 10 years
10 years or above