

樂訊 2020 Issue No. 1

VOICE **OF** ATAL

**On the
Leading Edge
of Building
Technologies
建造科技先鋒**



ATAL Engineering Group
安樂工程集團

Chairman's Message

集團主席的話



At the time of writing, Hong Kong is still fighting the Coronavirus which has threatened lives and the global economy with a severity never seen before. The Group has taken measures to help fight the pandemic, such as providing face masks and hand sanitisers to staff, subcontractors and charity NGOs. With the community's concerted efforts, we hope the pandemic will end soon.

The year 2020 has brought milestone developments. Further to our successful listing on the Main Board of the Hong Kong Stock Exchange in 2019, we have continued to grow the business and consolidate our market leadership. Examples include the fire services and plumbing facilities contract for SKYCITY at the airport, E&M maintenance for the Stonecutters Island Sewage Treatment Works and E&M alteration works for Galaxy Macau Phase 3. We also won our first lifts and escalators orders in Mexico and Portugal and secured distribution contracts in Asia, Europe and Eastern Europe -- breakthroughs made possible by our colleagues' hard work and collaboration.

Another milestone was the Group's acquisition of 51% of equity interest in Transel Elevator & Electric Inc (TEI) in March, setting our first foothold in the US market. A leading lifts and escalators company in New York, TEI will become our indirect non-wholly owned subsidiary, creating synergies for win-win success.

Technology is one of our competitive strengths. We are a pioneer in deploying technologies like Building Information Modelling (BIM) and Modularisation of Mechanical, Electrical and Plumbing (MEP) systems at major government and commercial projects to help clients raise productivity and quality. New construction technologies will play an exciting role in the new decade and we shall strive to stay in the forefront.

Also exciting are our new business wins of local projects, each of the projects is significant in its own way and our teams are working hard to ensure their successful completion.

It is heartening to note that despite these challenging times, our colleagues have won various awards and continued to participate in charitable and sports events. It is with this persevering spirit that we believe the city can beat Coronavirus and emerge stronger than before.

執筆之時，香港仍在全力抗疫。新型冠狀病毒大流行不但威脅民眾生命安全，更令全球經濟飽受前所未有的衝擊。安樂工程集團採取了一連串防疫措施，包括為員工、承辦商及多個非政府慈善機構提供口罩及消毒搓手液。在社會各界共同努力下，期望疫情可盡快結束。

集團在2020年豎立了不少里程碑。繼2019年在香港聯合交易所主板上市後，我們持續拓展業務並鞏固市場領導地位，陸續贏得多項大型項目，當中包括香港國際機場航天城的消防及給排水系統工程、昂船洲污水處理廠的機電設備維修保養合約及澳門銀河酒店第三期綜合機電改建工程等。此外，我們更分別於墨西哥和葡萄牙獲得首份升降機及自動梯訂單，並簽訂歐亞及東歐地區的分銷協議。這些業務上的突破，都是各同事努力不懈，通力合作的成果。

我們在年內更豎立了另一個發展里程碑，集團收購了紐約市升降機及自動梯業龍頭公司 Transel Elevator & Electric Inc (TEI) 的51%股權。TEI將成為我們的間接非全資附屬公司，我們會藉此進軍美國市場，預期收購能帶來協同效益，從而達致雙贏。

先進的科技一直是我們的競爭優勢，集團在大型政府及商業項目中，率先採用嶄新科技，例如建築信息模擬和機電與給排水系統模組化等技術，為客戶提升工程質素及生產力。新的建造技術在未來十年相當重要，我們會致力維持在建築科技方面的領導地位。

集團近期贏得的本地業務也令人雀躍，項目均規模龐大，各具特色，我們的團隊正全力以赴，務求各項目均能順利竣工。與此同時，我們獲得不少獎項嘉許，並積極參與各種慈善及體育活動。我們深信，香港人憑著這種鏗而不捨的精神，必能成功抗疫，並於疫後更為強韌。

Ir Dr Otto Poon
潘樂陶博士工程師

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On the Leading Edge of Building Technologies

建造科技先鋒

As the new decade begins, there is much industry discussion about new technology trends in the 2020s such as Artificial Intelligence, Augmented Reality, Automation of Things, Building Information Modelling (BIM) and Modular Integrated Construction (MiC), to name just a few. ATAL has long recognised the importance of applying technology in its projects. The Group attaches great importance to inhouse R&D and the early adoption of new technologies to tackle future challenges.

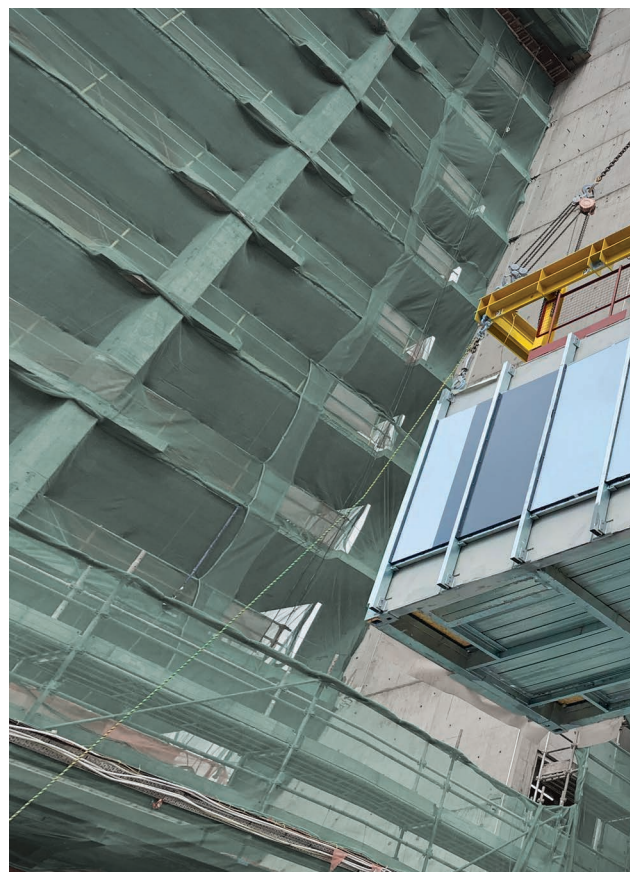
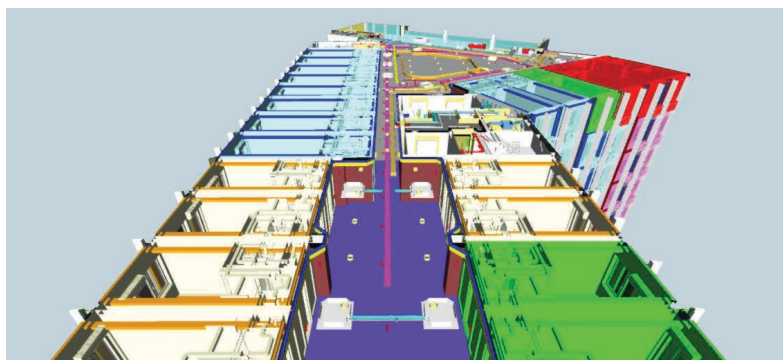
踏入2020年，業界聚焦探討未來十年的科技新趨勢，例如人工智能、擴增實境、自動化運作、建築信息模擬技術及組裝合成建築法等。安樂工程集團早已明瞭科技在工程項目上的重要性，亦很重視自行研發工作，率先引進新科技，以應付未來挑戰。

When it comes to adopting new technologies, mindset change is as important as the technology itself, says Brian Cheng, Chief Executive of Building Services Engineering. He has years of experience in spearheading migration to innovative technologies such as BIM and modularisation for major MEP projects.

“We have always explored and developed technologies to raise productivity and quality of our work,” Brian says. “BIM, MiC and MEP modularisation have the potential to help alleviate some of Hong Kong’s most pressing challenges, such

屋宇裝備工程首席總監鄭偉能認為，要採納新科技，思維改變與技術本身同樣重要。他有多年帶領工程團隊採用新技術的經驗，包括應用建築信息模擬和機電系統模組化等技術，頗有體會。

「我們一直探索和開發新技術，以提高生產力和施工質素。」他說。「建築信息模擬、組裝合成建築法和機電系統模組化等技術可望紓緩香港現時勞動力短缺及工



as labour shortages and an ageing workforce.” Here’s how these technologies have been applied in ATAL’s latest projects.

MiC and MEP Modularisation: The New Frontier

ATAL won the contract of InnoCell in the Hong Kong Science Park, one of the city’s first three MiC pilot projects. ATAL applied BIM and integrated it with modularisation for MEP system in this project.

“We install the MEP systems which are being pre-engineered by using BIM technology, followed by inspection and commissioning off-site. The completed MiC modules are then transported for on-site assembly.” Brian said.

Besides the InnoCell project, we are working on some other new projects but they are not using MiC for construction. However, our team has persuaded the clients to adopt MEP modularisation instead of traditional on-site construction for major MEP installations.

“The key to successful MEP modularisation system is meticulous sequencing, planning and co-ordination”, says Brian. Using BIM technology, the team breaks up the plants and systems into modules, prepares the modularisation drawings by conducting modules and delivery analysis, then deploys manpower to an off-site modularisation factory for pre-fabrication. Completed modules are inspected at the factory for quality and statutory compliance, then transported to the site for assembly and installation.



人老化等迫切問題。」安樂工程已引進這些技術，並採用於最新工程項目。

全新領域：組裝合成建築法與機電系統模組化

安樂工程奪得位於香港科學園的「創新斗室」項目，是香港率先試行組裝合成建築法的三個項目之一。安樂工程將建築信息模擬技術與機電系統模組化結合，應用於「創新斗室」項目。

「我們在工地以外的廠房，運用建築信息模擬技術預先製作及配合組裝合成建築法安裝機電系統，隨之進行檢測與驗收，再把完成的組件運送到工地現場進行組裝。」鄭偉能說。

除了「創新斗室」，我們也正進行其他新項目，部份項目並非以組裝合成建築法興建，但我們的團隊仍成功說服了客戶，在一些主要機電安裝採用機電系統模組化技術，以取代現場建造主要機電系統的傳統方法。

鄭偉能說：「機電系統模組化的成功關鍵，在於周詳細密的流程排序、計劃和協調。」團隊利用建築信息模擬設計圖，將各機電系統及設施分拆成多個組件，然後繪製模組化設計圖，再進行組件及運送條件分析，跟著安排人手在工地以外的模組化廠房生產預製組件。



MEP Modularisation Flow

1. Analyse BIM drawings and extract MEP systems into modules
2. Prepare modularisation drawings
3. Conduct modules and delivery analysis
4. Deploy workers for pre-fabrication in factory
5. Transport modules to site for assembly and installation

機電系統模組化工作流程

1. 分析建築信息模擬設計圖紙，抽取機電及給排水系統，並拆分成不同組件
2. 繪製模組化設計圖
3. 進行組件及運送條件分析
4. 安排工人在廠房預製組件
5. 將組件運送到工地現場組裝

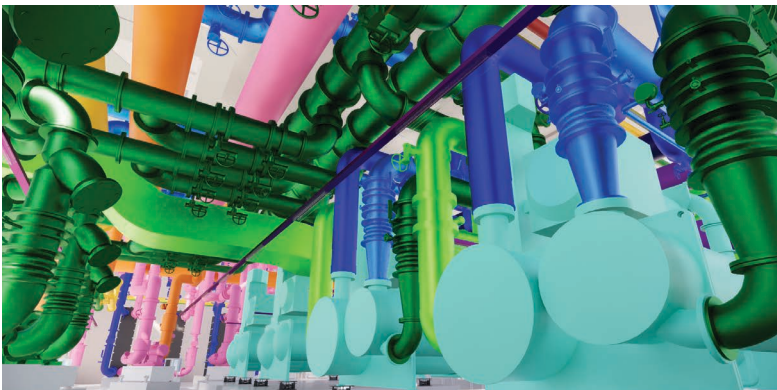
“MEP modularisation is an enhanced and more systematic version of pre-fabrication, with many benefits,” Brian explains.

Conventional vs Innovative

As MEP installation is always the final stage in a construction project, there is enormous time pressure as the completion date approaches, giving rise to errors, re-work and quality issues. The traditional method, where MEP systems are built from scratch on site, means that while some workers are frantically doing their jobs, others are idle as they wait for their sequenced tasks. Also, on-site storage space is often lacking or in poor condition, causing damage to materials.

Compared to this conventional approach, MEP modularisation improves efficiency, raises quality and reduces material wastage. The majority of work processes are transferred to an off-site factory where conditions are much better than can be achieved at a construction site. Quality and worker safety are therefore enhanced too. MEP modularisation can also proceed in parallel with building construction, avoiding a last-minute rush and ensuing problems.

And the challenges? “We need to educate our staff, convince clients, main contractors and sub-contractors,” Brian says. “Many think the traditional method is good enough, and that modularisation will only complicate their work and bring extra cost.” Since Hong Kong’s labour shortages will only worsen, he believes that modularisation is the solution going forward.

**Establishing Standards for MEP Modularisation System**

“We are happy that the MEP modularisation process has been quite smooth. Our aim is to achieve the efficiency of an assembly line, with no workers standing idle, and reduce wastage, so that productivity can be measured in man-hours, not man-days,” Brian says.

Brian and his team are working to develop a MEP modularisation system that will embody ATAL’s guidelines and workflow through the existing project processes. Overseas templates cannot be directly applied in Hong Kong as each project is different. To ensure that his team can analyse the efficiency of Hong Kong-specific MEP modularisation, Brian has arranged for some MEP systems

製成的組件會先在廠房檢測，確保品質達標並符合法定要求後，才運送到工地作現場組裝。

鄭偉能解釋：「機電系統模組化技術是預製組件技術的加強版本，更有系統，優點也很多。」

傳統對比創新

由於機電工程往往是整個建築項目的最後階段，隨著竣工日期將至，時間愈見緊迫，帶來莫大壓力，容易引起失誤、需要重做和質量偏差等問題。按照傳統做法，整個機電系統均於工地現場建造，即是說當部份工人全程趕工時，其他工人卻要閒置，等待上線的工序完成後，才可開始工作。此外，工地現場的儲存空間通常不足，加上環境未如理想，容易令建築物料損壞。

與傳統方法相比，機電系統模組化則可提升效率和施工質量，並減少建築物料浪費。由於大部份工序會從工地現場轉移至環境較佳的廠房進行，施工質量和工人安全也會相應提升。再者，由於機電系統模組化於建築物施工期間，同時進行，避免出現最後衝線的壓力，或者因趕工而引起的問題。

那麼，機電系統模組化又帶來了甚麼挑戰？「我們需要教育員工，說服客戶、總承辦商及分判商。」他續說。「許多人認為傳統的方法已經很好，覺得模組化只會令工作更繁複和成本更高。」然而，由於香港勞動人口短缺情況只會日趨嚴重，他相信模組化會是未來的發展方向。

建立機電系統模組化標準

鄭偉能表示：「我們很高興機電系統模組化過程相當順利。我們的目標是要達到流水作業式的效率，即工人無須閒置等待，而生產力可以更精準地以工時作計算單位，而非工日。」

集團正根據現有項目的工作流程，創立一個以安樂工程的工作指引及流程為基礎的模組化標準系統。由於每個項目都有其獨特之處，海外的模型不能直接套用於香港。為了確保團隊能夠精確分析本地機電系統模組化項目的效率，鄭偉能特別為一個選定項目的部份機電系統，分別採用了傳統和創新的方法安裝，讓團隊能利用數據，比較兩者的效率。

建築信息模擬先驅：啟德甲級商業項目

安樂工程是以建築信息模擬技術進行預製組件的先驅，而建築信息模擬技術亦是集團的強項。「我們

in a selected project to be installed in both the traditional and innovative ways so as to generate data to compare the two methods.

BIM Pioneer: Kai Tak Commercial Developments

ATAL is a pioneer in leveraging BIM in pre-fabrication works, not to mention that BIM is also one of its strengths. "With more than 10 years' BIM experience, we are entirely self-sufficient in BIM model construction and visualisation, making us an excellent partner for the client and main contractor."

We are also working on two premier commercial developments at Kai Tak. Both will use BIM from detailed design to construction, including the MEP systems.



One of the projects is a Grade A office and retail development at Kai Tak, which is our first commercial mall project using BIM. ATAL is the MEP contractor for fire services installation and the building management system for the whole development and for electrical installation and the mechanical, ventilation and air-conditioning systems for the podium and basement floors.

The other Kai Tak project consists of two commercial towers, each with four basements and 20 multi-purpose floors for offices, shops, supermarkets, restaurants, cinemas, sports hall and a major department store. ATAL is the MEP contractor for a complete package, covering HVAC, electrical and fire services, plumbing and drainage, and ELV systems installation.

As part of our commitment to the client, we have set up a special team, with a focus on producing the BIM models for MEP at full speed.

Going Forward

ATAL is an early adopter of BIM in Hong Kong. It now has a team of experienced inhouse BIM modellers and is capable of taking up major projects without outsourcing. "This is one of our competitive strengths", says Brian.

As for MEP modularisation, he believes it will be increasingly adopted. Main contractors have a key role to play as they must plan for large MEP modules to be moved into the building structure for installation towards the end of the construction period. The Government can also help by building more demo projects, which will generate data on MEP modularisation in Hong Kong. More communication by the Government is also necessary to help the industry understand that MEP modularisation is the future, given our labour shortages and ageing workforce.

"What is important about BIM and MEP modularisation is that both can raise productivity and improve processes for greater quality and worker safety, while also being more sustainable as wastage is reduced," Brian concludes. "Mindset change and technology go hand in hand here."

有十多年的建築信息模擬經驗，有能力獨力製作建築信息模擬模型和視像化，是客戶及總承建商的理想夥伴。」鄭偉能說。

集團現正於啟德進行兩個矚目的商業發展項目，由樓宇的詳細設計到施工，以至機電系統，兩個項目都採用了建築信息模擬技術。

當中包括啟德一幢甲級辦公大樓連零售發展項目，這也是集團首個採用建築信息模擬技術的商場項目。安樂工程是整個項目的消防安裝工程及屋宇管理設備系統的承辦商，同時會為平台與地庫樓層安裝機電力裝置及暖通空調系統。

另一項目同樣是啟德的商業綜合發展，包括兩幢甲級辦公商業大樓，每幢有四層地庫和二十層多用途空間，包括寫字樓、商店、超市、食肆、電影院、運動場所和一家大型百貨公司。安樂工程是整套屋宇裝備機電工程的承辦商，包括暖通空調、電氣、消防、給排水系統及特低電壓系統裝置工程等。

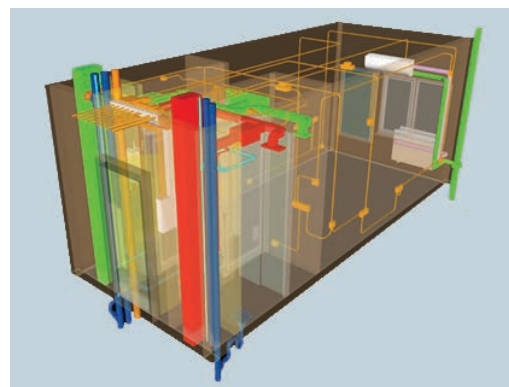
為了達到對客戶的承諾，我們在每個項目分別成立了一個專責團隊，聚焦全速以建築信息模擬技術，為大樓的機電系統設計及構建模型。

向前邁進

安樂工程是本港最先採用建築信息模擬技術的公司之一，集團現時有專職的建築信息模擬團隊，在構建模型方面經驗豐富，有能力承接大型項目，無須外判。鄭偉能說：「這是我們的競爭優勢之一。」

至於機電系統模組化，他相信技術會日漸普及。總承建商的角色很重要，因為他們必須預先做好計劃，讓大型的組件在建築工程臨近最後階段時，能順利移送到建築物內部，以便利安裝。同時，政府亦應扮演推動角色，例如推出更多示範建築項目，從而產生更多機電系統模組化技術的本地數據。政府也要與業界多作溝通，讓同業明瞭在勞動力日益短缺及老化的情況下，機電系統模組化是建築及機電業未來的大趨勢。

「建築信息模擬及機電系統模組化技術的重要性，在於兩者均可提高生產力和改善流程，從而提升施工質素與工人安全。此外，由於兩者都能減少浪費，因此亦更環保。」鄭偉能總結道：「改變思維與推動科技，確要相輔相成。」



Major MEP Contract Won at Kai Tak Commercial Development

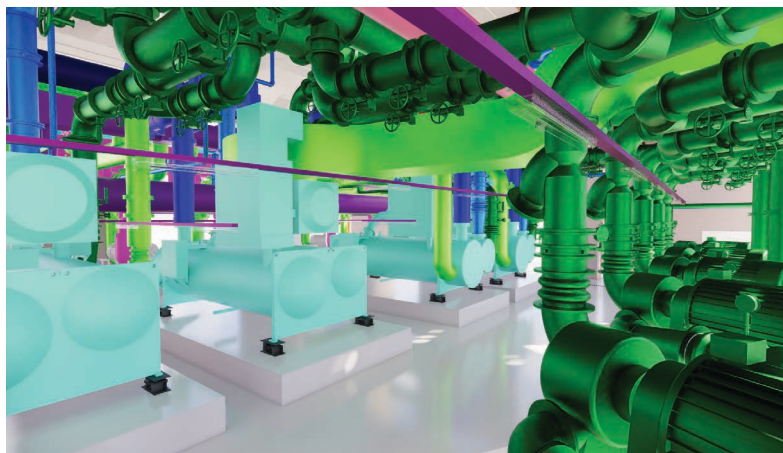
啟德商業項目機電給排水大型工程合約

ATAL has won another major contract in Kai Tak, namely the commercial development at New Kowloon Inland Lot 6557, Kai Tak Area 1E, Site 2. The project consists of two commercial towers, each with four basements and 20 multi-purpose floors. With total development area of 101,900 square metres, the project will have offices, shops, supermarkets, restaurants, cinemas, sports hall and a major department store. Upon completion in 2022, the twin towers will be a new landmark in East Kowloon.

Our contract is a complete package including HVAC, electrical, fire services, plumbing and drainage and ELV systems installation. This is one of ATAL's largest building services contracts to date, and we are excited by the business win.

Given the large scale of the development, the client selected its subcontractors very carefully. We went through rigorous pre-tender and tender stages with many interviews, clarifications and BIM preparation performance tests. The client's expectations are that we shall provide input to the design team in addition to our role as installation subcontractor. As the developer is a new client, we have spared no efforts in demonstrating our capabilities and BIM experience while also making substantial manpower commitment to the project.

As soon as the project was awarded, we set up a dedicated team to work there in full swing. As BIM is key to this project, our engineers have focused on BIM production, aiming to complete the BIM models for all mechanical, electrical and plumbing facilities for the podium before site takeover. We are committed to making the project a success and proving that the client had made the right choice in selecting us.



安樂工程再次贏得啟德發展區內大型工程合約。這個位於新九龍內地段第6557號啟德第1E區2號地盤的商業發展項目，為兩幢雙子塔式的商廈，每幢包括四層地庫及20層多用途樓層，將設有辦公室、商店、超市、食肆、電影院、體育場館和大型百貨公司，總發展面積達101,900平方米。項目預計於2022年竣工，屆時雙子塔將成為東九龍的新地標。

我們取得屋宇裝備工程全套合約，包括安裝暖通空調、電氣、消防設備、給排水系統以及特低電壓系統等。這合約是安樂工程迄今最大的屋宇裝備工程項目之一，今次中標令我們雀躍萬分。

由於項目規模龐大，客戶在選擇承判商時特別謹慎，在招標前的篩選過程及招標各個階段均非常嚴格，我們需要經過多次面試，闡釋說明項目及接受建築信息模擬技術測試。客戶期望我們除了負責安裝工程外，還可向設計團隊提供意見。由於發展商是新客戶，我們竭盡所能，展示安樂工程的實力及在建築信息模擬技術方面的豐富經驗，並承諾為項目投入大量人力資源。

我們取得工程合約後，隨即設立了一支專責團隊，全面展開工作。由於建築信息模擬技術是項目的關鍵，我們的工程師現正製作建築信息模型，旨在接收工地之前，完成平台上所有機電及給排水等設施的模型。我們會致力為客戶完成項目，證明客戶選擇我們是明智決定。

First CLP Maintenance Contract for Power Stations

首份中電發電廠維修保養合約

CLP has awarded ATAL with a five-year E&M maintenance contract for its Castle Peak Power Station and Black Point Power Station, both in Tuen Mun, and Penny's Bay Power Station on Lantau Island. This is our first E&M maintenance contract with CLP, a major utility in Hong Kong which generates and distributes electricity to Kowloon, New Territories and most of the outlying islands, serving over six million people in Hong Kong. We are delighted with the opportunity to work with the company.

The contract covers all electrical, control and instrumentation systems at the three power plants. We shall carry out all preventive and corrective maintenance works for their cooling water systems, electricity generation facilities, continuous emission monitoring systems, fire service facilities, water treatment and sewage treatment systems. All the systems and facilities are essential to maintaining CLP's 99.995% power supply reliability.

One of the challenges for the maintenance team is to be on the lookout for technical issues that might arise from some of the older equipments, as Castle Peak Power Station was commissioned in the 1980s and Black Point Power Station was commissioned from 1996 to 2006. We have deployed a resident team of about 60 people comprising engineers and technical staff to support Castle Peak Power Station and Black Point Power Station, while Penny's Bay Power Station is served on a needs basis as it is a back-up facility that only operates in the event of interruptions or setbacks on CLP's systems.

Steady and reliable power supply is vital to Hong Kong's economy and safety. We are glad to be part of the team which ensures uninterrupted electricity supply to our population.

安樂工程取得中華電力為期五年的機電工程維修保養合約，分別為屯門的青山發電廠和龍鼓灘發電廠及大嶼山的竹篙灣發電廠，提供機電維修保養服務。中電是本港主要公用事業公司，為九龍、新界和大部份離島發電及輸電，服務香港六百多萬人。這是我們首次取得中電的機電維修保養合約，很高興能夠與中電合作。

合約涵蓋三個發電廠的所有電力、控制和儀器系統。我們將為他們的水冷系統、發電設施、煙囪排放監測系統、消防設備、清水及污水處理系統等提供預防性及緊急維修工作。這些系統及設施，對中電維持99.995%的供電穩定性非常重要。

我們維修保養團隊面對的挑戰之一，是要為部份老化設施的潛在技術問題做好準備。青山發電廠早於1980年代已投入服務，而龍鼓灘發電廠則於1996年至2006年陸續啟用。此項目我們派遣了一支約60人的駐場團隊，包括工程師和技術人員，負責青山發電廠及龍鼓灘發電廠的維修保養工作。竹篙灣發電廠方面，由於是後備設施，只在中電系統發生事故或中斷時才會投入運作，因此我們團隊也會按需要提供服務。

穩定可靠的電力供應對香港的經濟和安全相當重要。我們很高興能夠成為團隊一份子，為本港市民供應無間斷電力而努力。



Tuen Mun Castle Peak Power Station 屯門青山發電廠

Contracts Awarded for Two Taikoo Place after Success at One Taikoo Place 再下一城：太古坊二座工程合約

Taikoo Place at Quarry Bay is widely recognised as a well-planned major business hub in Hong Kong, and an extensive redevelopment project has been taking place there in recent years. We are delighted to have been awarded several contracts comprising pumping and drainage, building management systems, ELV systems, IoT network and a chiller plant energy management platform for Two Taikoo Place. The new building, a sister tower to One Taikoo Place where we also successfully implemented various E&M contracts, is part of the Taikoo Place redevelopment project. Completion of the building is expected in 2021.

In this project, we installed a Building Management System centralised platform that allows users to manage various building systems from a single platform in order to enhance the efficiency in monitoring and control. Also, the comprehensive ELV and security systems, incorporated with the latest technologies, can strengthen the security and better safeguard the premise.

Two Taikoo Place is a highly-energy efficient building. It is equipped with a wireless IoT network, which enables a more efficient way for data collection, and an energy platform which optimises energy use and achieves energy saving with AI technologies and big data analytics.

We are delighted to have the opportunity to work on Two Taikoo Place and will spare no efforts in making it a success.

位於鰂魚涌的太古坊，公認為香港規劃最完善的主要商業區之一，近年更積極進行大規模重建計劃。我們很高興獲得多項工程合約，包括為太古坊二座提供給排水系統、樓宇管理系統、特低電壓系統、物聯網設施及製冷機組能源管理平台。這幢新建的甲級商廈，是太古坊一座的姊妹大樓，也是太古坊重建計劃的一部份，我們早前亦成功為太古坊一座完成了多項機電工程合約。新大樓預計於2021年落成。

我們為新大樓安裝了一套中央樓宇管理系統，使用者只需從一個中央平台，即可同時處理不同的樓宇管理系統，以提高監控效率。此外，新大樓也安裝了具備最先進科技的完備特低電壓系統和保安系統，可加強大樓的保安。

太古坊二座是一幢高能源效益的建築物，當中裝設了無線物聯網，能提升數據收集效率。大樓亦安裝了一套能源管理平台，透過人工智能和大數據分析，能源使用效益將長期保持在最佳狀態，從而節能省電。

我們很高興能夠參與太古坊二座項目，將竭力完成項目。



ATAL Participates in Landmark Project: Hong Kong Palace Museum

參與地標項目：香港故宮文化博物館

The Hong Kong Palace Museum, a collaborative project between the West Kowloon Cultural District Authority and the Palace Museum in Beijing, will exhibit valuable artifacts from the renowned Beijing museum. ATAL has been awarded the contract for plumbing and drainage system installation and Anlev awarded the contract for the design, supply and installation of a heavy-duty freight lift.

With total floor area of about 30,000 square metres, the museum will have 7,800 square metres of gallery space dedicated to gold, bronze and jade items, paintings and ceramics, as well as displays of life in the old imperial court. Visitors will also be able to enjoy ample rest areas inside and outside the museum, including an auditorium, atriums, educational spaces, gift shop and dining areas. Construction commenced in 2017 and the museum is scheduled to open in mid-2022.

Safe and reliable vertical transportation is vital in any museum building to ensure the smooth conveyance of priceless national treasures. For the Hong Kong Palace Museum, ATAL's subsidiary Anlev will offer a heavy-duty freight lift equipped with an ACVVVF Drive and other energy saving features to achieve the latest requirements of the Buildings Energy Efficiency Ordinance and its related Codes of Practice.

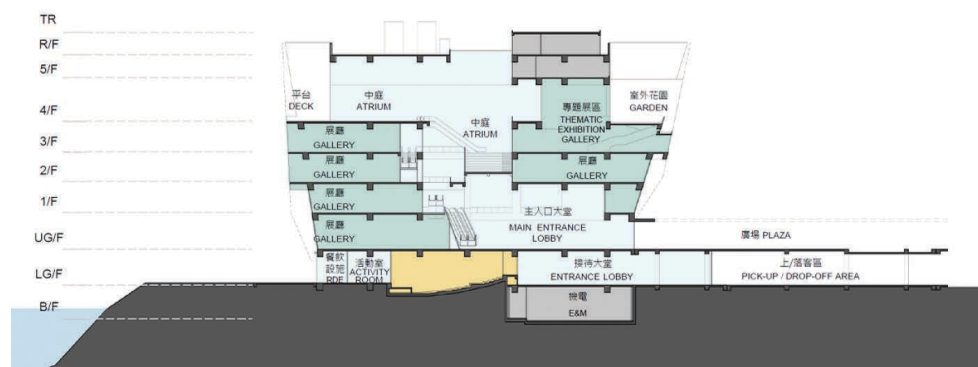
We are honoured to have the opportunity to participate in this landmark cultural project.



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香港故宮文化博物館是西九文化區管理局與北京故宮博物院的合作項目，將展出故宮博物院的珍藏。安樂工程取得有關重型貨運升降機的設計、供應及安裝工程合約，及承判安裝給排水系統。

博物館樓面面積約為30,000平方米，包括7,800平方米的展廳，用於展出金器、銅器、玉器、書畫、陶瓷，以及有關宮廷生活的文物。館內外均設有大量供訪客休憩的空間，並設有演講廳、中庭、教育活動室、紀念品店和餐飲等設施。博物館已於2017年動工興建，計劃於2022年中啟用。



安全可靠的垂直運輸系統對博物館建築至為重要，可確保能順利運送國家級的無價瑰寶。安樂工程的附屬公司安力電梯，將為香港故宮文化博物館提供配備變頻驅動器及多種節能特色的重型貨運升降機，以達到《建築物能源效益條例》及相關實務守則的最新要求。

安樂工程有幸參與這文化地標項目，實與有榮焉。

BIA Outstanding Construction and Renovation Award for Fleur Pavilia Project 柏蔚山項目獲BIA優秀大獎

ATAL has again proved its excellence in residential projects.

This year, BIA Outstanding Construction and Renovation Award organised by the Hong Kong Professional Building Inspection Academy was assessed that we won the Award for Quality Sub-contractor in the "Bathroom Fittings, Plumbing and Drainage" category for our work at Fleur Pavilia. The luxury residential development at Kai Yuen Street, North Point has become a new landmark in the area. ATAL was awarded the sub-contract in 2015 and completed the project in 2019.

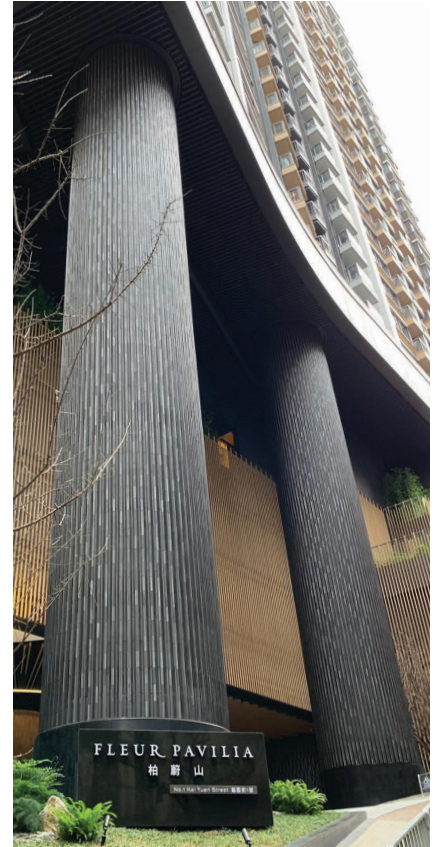
The BIA annual award aimed to promote and recognise quality performance by the building, construction and renovation industries. Building developers, contractors

and sub-contractors with the highest scores from the Academy's inspections will receive the awards. ATAL was honoured by the award and its recognition of our quality.

安樂工程在住宅項目的卓越表現再獲嘉許。

我們的柏蔚山工程項目在今年香港專業驗樓學會的「建造及裝修業優秀大獎」中，獲選為潔具及來去水組別的優質承辦商。柏蔚山豪宅項目位於北角繼園街，現已成為該區新地標。安樂工程於2015年取得承辦商合約，並於2019年完成項目。

「建造及裝修業優秀大獎」是香港專業驗樓學會一年一度的盛事，旨在推廣及嘉許屋宇、建造及裝修業界的卓越表現。發展商、總承建商及承辦商經學會檢驗評審後，得分最高者會獲發獎項。今次獲獎，證明安樂工程的優質工程獲業界認同，我們深感榮幸。



San Wai Project Obtained BEAM-Plus Provisional Platinum Rating 新圍項目獲綠建環評暫定鉑金評級

Our San Wai Sewage Treatment Works Phase 1 project obtained BEAM-Plus Provisional Platinum rating certification in 2019. We are delighted with the recognition and will continue our effort on the final assessment rating in the near future.

The Phase 1 contract comprised civil structures and sewage treatment process

design, construction of the treatment plant and a 15-year operation period. As part of the ATAL-Degremont-China Harbour Joint Venture Company which executes the contract, our environmental engineering team has applied extensive energy saving and environment-friendly features to the entire plant life cycle, including planning, design, construction, operation and management.

The Provisional rating certification reflects the collaborative spirit among all the joint venture partners, with great effort and contribution from various trades such as geotechnics, civil structures, electrical and mechanical engineering and sewage process.

我們的新圍污水處理廠第一期項目榮獲「2019年度綠建環評」暫定鉑金級認證。我們對評級認可感到鼓舞，並會致力在不久將來完成最終評級。

工程合約由安樂工程、得利滿及中國港灣組成的聯營公司負責，包括土木及結構工程、污水處理程序設計、興建污水處理廠及為期15年的營運。作為聯營公司的一份子，我們的環境工程團隊在整個廠房的项目周期，包括規劃、設計、施工以至營運及管理，均廣泛應用了綠色節能及環保技術。

項目取得暫定鉑金級認證，凸顯了聯營公司與各夥伴的通力合作，及團隊裡岩土及土木結構、機電工程及污水處理等各行業專才共同努力的成果。



CEO Retirement and Group Reorganisation 行政總裁榮休及集團架構重組

Kevin Cheng has retired as Executive Director and Chief Executive Officer effective 1 April 2020 after 37 years of outstanding service at the company. Group Chairman Dr Otto Poon thanked Kevin for his “immense contributions” and “exemplary dedication” to the Group over the years.

Meanwhile the Chairman has announced a new organisation structure. Victor Law and Raymond Chan have been both promoted to Managing Director positions. Victor leads the building services, data centre, healthcare & infrastructure businesses, quality, safety & environment and BIM teams. Raymond leads the environmental



engineering, information, communications and building technologies and lifts and escalators businesses, and innovation team. The Group's financial operations and

administration is led by Peter Cheng, Chief Financial Officer.

在安樂工程服務逾37年的集團執行董事兼行政總裁鄭小藝先生，於今年4月1日榮休。集團主席潘樂陶博士對他的出色表現衷心致謝，並稱讚鄭先生多年來為集團作出鉅大貢獻，並全心全力服務集團，此足為典範。

集團同時宣佈架構重組。羅威德先生及陳海明先生同時晉升為集團董事總經理。羅先生帶領屋宇裝備工程、數據中心、醫療服務及基建等工程業務和品質、安全及環境事務，以及建築信息模擬團隊；陳先生掌管環境工程、資訊、通訊及屋宇科技和升降機及自動梯等業務，以及創新團隊。集團的財務及行政營運，則由首席財務總監鄭偉強先生領導。

ATAL Partners with Transel Elevator & Electric and Sets US Foothold 安樂工程夥拍 TEI 進軍美國

Analogue Holdings Limited announced on 31 March its acquisition of 51% of equity interests in Transel Elevator & Electric Inc (TEI) at a total cost of US\$35.7 million, or about HK\$278.46 million, setting the Group's first foothold in the US market. TEI will become the Group's indirect non-wholly owned subsidiary.

Group Chairman Dr Otto Poon said, “We are pleased to announce the partnership with TEI, another significant initiative of the Group.” Over the years, ATAL has successfully expanded our lifts and escalators business and created our own brand Anlev. He believes the acquisition will strengthen the Group's customer base and allow it to better execute the New Technology, New Market and New Business Mode strategy.

Founded in 1989, TEI is one of the largest independently owned lifts and escalators companies in New York. Given TEI's leading position and reputation, the Group sees its market potential and expects good synergies for win-win success.



安樂工程集團有限公司於3月31日宣佈，以作價 3,570萬美元，即相當於2.78億港元，收購 Transel Elevator & Electric Inc 「TEI」的 51%股權，藉此進軍美國市場。TEI亦成為安樂工程集團旗下的間接非全資附屬公司。

集團主席潘樂陶博士表示：「我們欣然宣佈與TEI的夥伴合作關係，這也是集團的另一重大發展。」多年來，集團一直不遺餘力

拓展升降機及自動梯業務，並創立自家品牌 Anlev。他相信透過今次收購，將可加強集團的客戶基礎，更有效地落實「新科技」、「新市場」及「新業務模式」的策略。

TEI於1989年創立，為紐約市最大的獨立營運升降機及自動梯公司之一。鑑於TEI的市場領導地位及良好聲譽，集團看好其發展潛力，預期雙方能產生協同效益從而達致雙贏。

Showcasing Innovative Projects at CIC Construction Innovation Expo 2019

參與2019建造創新博覽會 展示創新項目

ATAL participated in the 2019 CIC Construction Innovation Expo 2019 held in December. More than 120 entities took part in the event, with the focus on four construction innovations, namely Offsite Construction, Robotics and Automation, Digital Solutions, and Advanced Technologies and Materials.



The theme of our booth was “Digitisation of E&M Engineering” and showcased three innovation projects: Unmanned Aerial BIM Converter, Integrating AR with E&M Design Verification and Smart Building Platform. The projects illustrated the three stages in

construction, which are BIM construction, design and operation.

We were delighted to share our technologies with the industry at the signature event.

安樂工程在12月參加了建造業議會「2019建造創新博覽會」，主題是四大建造創新科技，分別為装配式建築、建造機械化、建造數碼化和先進技術及材料，為期三日的展覽共有120多個機構參與。

我們的展館以「機電工程的數碼化呈現」為主題，展出三個創新項目，包括無人機建築信息模擬（BIM）轉換器、機電模型與擴增實境（AR）及智慧屋宇管理平台。

這三個項目分別可應用於屋宇建築的三個階段，即建立建築信息模型、設計、及操作與管理。

我們很高興能參與這項盛事，與業界分享集團的最新科技。

Sharing Latest Smart Building Solutions with Market Leaders

與業界領袖分享最新智慧屋宇管理方案

ATAL was invited to speak at continuous professional development events of the Hong Kong Green Building Council (HKGBC) and EMSD annual technical forum.

We were glad to share our applications of ELV technologies in the residential sector and our latest Smart Building Platform in the facility management sector at two HKGBC events. We introduced the newest technologies to residential market for enhanced access control and security management, and explained how the holistic IoT-based building platform can gather and analyse building data in real-time to achieve smart facility management.

At the EMSD's Technical Forum 2019, we presented on the topic of “Considerations in Choosing the Right Cooling Towers”. We shared some key considerations in choosing cooling towers and discussed the increasing possibility of severe weather events which could pose significant safety threats and suggested some mitigating measures.



We were pleased to exchange ideas and connect with market leaders through these meaningful events.

安樂工程應邀出席香港綠色建築議會的持續專業發展活動及機電工程署的年度技術論壇，與業界分享經驗。

在香港綠色建築議會的兩次活動中，我們介紹了安樂工程在住宅項目應用特低電壓技術的情況，和適用於設施管理行業的最新智慧屋宇管理平台方案。我們也簡介了為住宅市場加強門禁及保安管理的最新技

術，並闡釋如何透過全面的屋宇物聯網平台，實時收集及分析屋宇數據，以實現智能設施管理。

在機電工程署的2019年度技術論壇上，我們發表題為「挑選合適冷卻塔的注意事項」，分享了選擇冷卻塔時必須考慮的關鍵因素。此外，由於惡劣天氣日子可能漸見頻繁，繼而構成重大安全威脅，我們亦提出一些緩解措施。

我們很高興能透過這些有意義的活動，與業界翹楚加強聯繫，交流意見。

Presenting our Dynamic Project at EMSD Contractors Forum 於機電署承辦商大會作分享

At the EMSD Contractors Forum 2019, we were honoured to present on the progress of our Central-Mid-Levels Escalator and Walkway System refurbishment project. Our presentation focused on best practices in work site safety.

Works to refurbish the ageing system's 16 escalators and 3 walkways in 11 phases began in 2018, with a target completion date in 2022. The project is highly challenging due to numerous work site constraints and the need to minimise disruption to the communities which the system serves.

During the presentation, we highlighted our comprehensive safety measures such as good work site management, safe work practices and safety inspections. Caring deeply for workers and the community, we have achieved very high safety standards while keeping work progress on schedule. The project has won recognition and awards by government departments and organisations.



我們很榮幸獲邀在機電工程署2019年承辦商大會上，分享中環半山自動梯系統更新工程的進度，並重點介紹該項目在工地安全方面的良好作業措施與經驗。

該項目是為日漸老化的中環半山自動梯系統進行翻新工程，包括16條自動梯和3條自動行人道。工程已於2018年動工，分11個階段進行，計劃於2022年完成。項目極富挑戰

性，施工現場環境複雜，限制甚多，同時我們必須盡量減低工程對社區造成的影響。

我們尤其注意工程期間的全面安全措施，包括良好工地管理、安全施工方法及巡查等。基於對工友及社區的關顧，我們不但確保了工程進度理想及達致極高的安全標準，項目更獲得多個政府部門及機構嘉許及頒發獎項。

Awarded 10 Years Plus Caring Company Logo 獲頒「商界展關懷」10年Plus標誌



ATAL has been awarded the 10 Years Plus Caring Company Logo by the Hong Kong Council of Social Service, in recognition of the Group's continued efforts on caring for the community, employees

and the environment. We are glad to get this recognition which was a testament to our commitment to corporate social responsibility (CSR) and giving back to the community.

Over the years our CSR work has focused on three areas: community service, caring for staff and the environment. This was done via forging close partnerships with various non-governmental organisations. In the process, we have encouraged all our staff that in addition to creating value for the company, they should also generously give back to the community.

安樂工程獲香港社會服務聯會頒贈10年Plus「商界展關懷」標誌，以表揚集團在關懷社區、員工和環境方面的持續努力。這項殊榮，佐證了集團一直堅守履行企業社會責任，回饋社會的精神。

多年來，我們的企業社會責任工作，主要集中在關懷社區、員工和環境三方面，並透過與不同的非政府組織建立緊密夥伴關係，共同落實各種活動，過程中更鼓勵每一位員工，在為公司創造價值之餘，也不忘回饋社會。



Caring Campaign in the Fight Against Coronavirus 新冠病毒抗疫關愛行動

As the new coronavirus becomes a world pandemic, the livelihood of construction workers in Hong Kong has been severely affected. Most frontline workers would face great financial difficulty if infected by the virus.

ATAL not only provides masks and hand sanitisers to staff, but also fully supports the Construction Industry Caring Campaign initiated by the Construction Industry Council. The campaign gives monetary support to construction workers infected by the disease or are placed under compulsory quarantine.

We are contributing supplies and funds to help the cause. At the same time, we have also donated masks to various NGOs, including Caritas, Open Door Ministries and Rainbow Foundation to support their voluntary services and the underprivileged in these challenging times. Working together, we can help those affected and instill positive energy into the community.

新型冠狀病毒全球大流行，香港建造業工人的生計受嚴重影響。我們明白前線工人一旦確診，可說是手停口停，生計大受打擊。

安樂工程除了向員工派發防疫物資，更全力支持建造業議會發起的「建造業抗疫關愛行動」，為受疫情影響的同業，包括已確診或需要接受強制檢疫隔離的建造業工友，提供援助金。

此外，我們捐出抗疫物資及善款，全力響應關愛行動，向多個慈善機構，例如明愛中心、開心社區及Rainbow Foundation捐贈口罩，於此艱難時刻支援他們的義工服務及扶助有需要人士。我們相信只要同心合力，扶助受影響人士，就能為社區注入正能量，攜手共渡難關。



Community Chest Corporate Challenge for Charity 公益慈善馬拉松

In January, nearly 80 ATAL staff members with their companions took part in the Community Chest Corporate Challenge 2020.

Led by Dave Chan, Chief Executive of Information, Communications and Building Technologies, our colleagues took part in the half marathon and the 10km run and enjoyed a day of sports and fun. Many also took the opportunity to challenge themselves and hone their running skills.

Funds raised were used to enhance rehabilitation and after-care service supported by the Community Chest.

「公益慈善馬拉松2020」於1月舉行，吸引了近80名安樂工程員工及其親友參加。

在集團的資訊、通訊及屋宇科技首席總監陳志雄帶領下，我們的同事參加了半馬拉松

及10公里長跑賽事，在挑戰自己及鍛鍊長跑技巧之餘，更歡度了充滿活力的一天。

活動籌得的善款，將用於公益金的復康及輔導服務，饒具意義。



Excellent Results at CIC Sports Day 於建造業運動會創佳績

ATAL athletes achieved excellent results again at the CIC Construction Industry Sports Day and Charity Fun Day 2019 held in December.

Our colleagues won a gold medal and a silver medal in men's 800m races, a gold medal in men's 400m race and a gold medal in women's shot put. Our team also won the silver medal in men's 4x400m relay.

Congratulations to the athletes for their outstanding performance! We also thank all our colleagues for supporting the event.

建造業議會「2019建造業運動會暨慈善同樂日」已於12月舉行，安樂工程的團隊當天再創佳績，勇奪三金兩銀獎牌。

我們的選手在男子800米項目勇奪金銀牌，



並分別在男子400米項目及女子推鉛球項目獲得金牌。此外，我們的男子隊在4×400米接力賽也贏得了銀牌。

恭賀各同事的出色表現，並感謝同事支持是次活動，期望下年能夠再次參加。

Supporting the CIC Happy Run 2020 全力支持建造業開心跑2020



Our colleagues took part in the CIC Construction Industry Happy Run and Carnival 2020 held in January. We are delighted that our team won a gold medal in the senior session of men's 10km run, while Brian Cheng, Chief Executive of Building Services Engineering and his daughter took the top prize in the family run!

ATAL was one of the sponsors of this annual event which comprised the charity run and a fun carnival for industry practitioners, their families and friends. The funds were used to promote a healthy and sporty lifestyle and support volunteer activities.

我們的團隊在1月舉行的「建造業開心跑2020」中報捷，在男子長青組10公里賽事中



奪魁，而屋宇裝備工程首席總監鄭偉能及其女兒，也於親子牽手跑賽事中首名衝線，可喜可賀！

這個周年慈善長跑及嘉年華活動由建造業議會舉辦，是為建造業從業員及其親友而設，安樂工程是贊助商之一。籌得善款將用於推廣健康生活方式和鼓勵同業多做運動，並贊助義工活動。

Competitive Spirit on the Football Field 馳騁綠茵 足球競技



In December 2019, ATAL held its annual football tournament, inviting the Hong Kong Hospital Authority (HA), ARUP, Nam Fung Group, the Electrical and Mechanical Services Department (EMSD) and the Water Supplies Department (WSD) for a day of friendly matches at The University of Hong Kong Stanley Ho Sports Centre. The tournament aimed to promote work-life balance among our clients and working partners and sharpen the teams' soccer skills.

After several rounds of exciting competitions, the ATAL team became the first runner-up in the Cup match, with HA as the champion. WSD won the Plate match, and EMSD was the first runner-up. In the Shield match, Nam Fung Group took the first prize and ARUP was the first runner-up. HA footballers also won the Most Valuable Player award and the Senior Most Valuable Player award.

2019年12月，安樂工程於香港大學何鴻燊體

育中心舉行一年一度的足球邀請賽，香港醫院管理局、奧雅納、南豐集團、機電工程署及水務署均有派隊參加。集團希望透過舉辦足球友誼賽，能夠向客戶和合作夥伴提倡工作與生活平衡，同時切磋球技。

當天經過多輪激烈比賽後，醫院管理局贏得盃賽冠軍，安樂工程球隊則獲亞軍。水務署在碟賽奪得冠軍，而機電工程署獲亞軍。南豐集團則贏得盾賽冠軍，奧雅納得亞軍。醫院管理局的球員，更獲頒「最有價值球員」及「最有價值先進球員」獎項。

Victory at ACRA Badminton Tournament 勇奪ACRA恆豐盃羽毛球賽冠軍

Our staff badminton team took part in the ACRA Badminton Tournament 2019 (IES Cup) competition held in December. The Hong Kong Air Conditioning and Refrigeration Association (ACRA) held the annual event to foster relations with the trade.

ATAL players put their best efforts into every match on the day and finally won the Cup championship. A big thank-you to the team and congratulations!

安樂工程的羽毛球隊於12月參加了ACRA

2019年恆豐盃比賽，勇奪冠軍。賽事由香港冷凍商會舉辦，旨在促進業界同儕的關係。

由初賽至總決賽，我們的球員在每場比賽都全力以赴，施展渾身解數，最終不負眾望奪魁，可喜可賀！



Skin Care DIY Workshop 自製天然護膚品工作坊

To help our colleagues get ready for the dry winter, we held a Natural Skin Care Products Workshop before Christmas last year. Participants learnt how to make DIY skin care products using natural ingredients, which was tailored to suit one's unique needs.

The workshop also helped participants better understand the harmful effects of skin care products made with chemicals. The knowledge was useful for protecting ourselves and the environment.

在去年聖誕節前，我們舉辦了「天然護膚品

工作坊」，讓同事為乾燥的冬天做好準備。同事可根據自己的皮膚特性，以天然材料調製適合個人需要的護膚品。

同時，工作坊讓同事深入了解護膚產品當中的化學成份會帶來害處。同事完成工作坊後，更懂得保護自己及愛惜環境。



ARWA Club Disneyland Christmas Day 康體會聖誕樂遊迪士尼

Always mindful of the needs of our colleagues, the ARWA Club organised a Disneyland Christmas Day in December for colleagues to enjoy a day of festive fun.

Over 150 colleagues and their families joined the event. Everyone had a great time enjoying the unique experiences at the theme park, like posing with their favourite iconic cartoon characters for photos and taking the thrilling amusement rides. All participants were delighted to have enjoyed a fairy tale Christmas.

為慶祝聖誕佳節，安樂康體會特意舉辦「迪士尼同樂日」，讓同事與家人歡度充滿節日氣氛的一天。

當天有超過150位同事及家人參加，一起暢遊迪士尼樂園。除了與喜愛的卡通人物合照外，大家更體驗了不同的刺激機動遊戲，感受一個童話式的聖誕節。



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