

樂訊 2018 Issue No.1

# VOICED **OF** FATAL

Dynamic Engineering Project at the Heart of Hong Kong  
港島矚目的核心工程項目

Final Preparations for Hong Kong-Zhuhai-Macao Bridge  
港珠澳大橋工程邁向最後階段

Canatal Listed on Shanghai Stock Exchange  
佳力圖上海證交所主板上市



ATAL Engineering Group  
安樂工程集團



# Chairman's Message

## 集團主席的話

The first half year of 2018 saw good progress at ATAL which I'd like to share with you all.

Earlier in 2017, the Group's Lifts and Escalators under Anlev won the refurbishment contract of the entire Central-Mid-Levels Escalator and Walkway System, a highly visible project in a unique neighbourhood. Given the site constraints and unique mix of stakeholders, it is equally important for us to tackle the myriad of technical challenges and ensure harmonious community relations. Works have begun in March 2018 and Anlev will no doubt rise to the challenge, adding tremendous value to the System and the community upon project completion in 2022.

Another extraordinary project is the men made island for Hong Kong-Zhuhai-Macao Bridge for which ATAL provides E&M, ICT and lift services. Final preparations for its opening are in full swing. We are particularly proud of our team's innovative application of the latest detection and recognition technologies to its various boundary control functions, achieving extra security and convenience for all users.

Our associate partner, Nanjing Canatal Data-Centre Environmental Tech Co Ltd, was listed on the Shanghai Stock Exchange in November 2017. Canatal is one of the market leaders in the precision air-conditioning industry and our valued partner in a wide range of businesses such as data centres.

Other new business wins were equally impressive, including a number of triennial contracts for various government venues and hospitals, a contract to turn food waste into energy, and another state-of-the-art IoT network for facility management – all exciting business developments.

Last but not least, thanks to our colleagues who have worked hard to win various awards for ATAL and those who represented us in sports and charity events. Your commitment and effort are living proof of the ATAL spirit.



2018 年上半年，安樂工程的業務大有進展，我很高興與大家分享。

集團旗下安力電梯的升降機與自動梯，於 2017 年初取得中環至半山自動扶梯系統的更新工程合約。這是個大型工程項目，且位處一個極具特色的社區，相當矚目。由於施工環境頗多限制，且社區的持份者組合特殊，我們既要克服工程技術上種種挑戰，也同樣重視社區關係的和諧。首期工程已於 2018 年 3 月展開，我深信安力電梯能克服種種困難和挑戰，到 2022 年項目完成時，將帶來一個全新的優質電梯系統，造福中西區市民。

港珠澳大橋人工島工程是另一個非凡項目，安樂工程為項目提供機電、資訊通信技術、電梯工程服務，目前正為大橋通車在即而進行最後階段的準備工作。我們的團隊為橋上各個邊境控制系統，以創新方法應用了最新的偵測和辨識技術，保安度更高，用家也會倍感方便。

集團的聯營夥伴南京佳力圖機房環境技術股份有限公司，已於 2017 年 11 月於上海證券交易所主板上市。佳力圖是精密空調行業的領先企業之一，也是我們在多種業務如數據中心等的重要合作夥伴。

今年集團也贏得多份新合約，包括為多個政府場地及醫院提供為期三年的工程服務、將廚餘轉廢為能，及物業管理物聯網等，都是令人振奮的新業務。

最後我們要多謝所有同事，不但為集團贏得多個獎項，而且積極參與各種運動比賽與慈善公益活動。大家的投入和力量，正是安樂工程精神的最佳印證。

**Ir Dr Otto Poon**  
潘樂陶博士工程師

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# Dynamic Project at the Heart of Hong Kong

## 港島矚目的核心工程項目

It's hard to remember a time when there were no escalators connecting Central and Mid-levels. Both a charming commute and an enduring tourist attraction, the world's longest escalator system according to Guinness World Records, is an inseparable part of the hilly heart of downtown Hong Kong.

連接中環與半山的自動梯，是健力士世界紀錄中全球最長的自動扶梯系統。它早已成為港島區生活一部份，既是方便又有特色的代步工具，也是歷久常新的遊客景點，很難想像那兒沒有自動梯的日子。

Opened in 1993, the over 800-metre Central-Mid-Levels Escalator and Walkway System in Hong Kong spans nine streets from Des Voeux Road to Conduit Road, with a rise of more than 135 metres.

After 25 years of continuous operation, the Central-Mid-Levels Escalator is now past its serviceable life. The escalators and walkways are showing signs of wear and tear. Replacement parts are increasingly difficult to source. Fault rates and maintenance costs continue to rise. And daily passenger numbers are much higher than the system was designed for. It's time to uplift the quality of the Central-Mid-Levels Escalators to meet increasing usage demand, the latest safety standards and the Electrical and Mechanical Services Department's (EMSD) requirements.

Stepping up to undertake this high-profile refurbishment is ATAL Engineering Group's Anlev Lifts and Escalators.

The team was awarded the refurbishment contract by EMSD in March 2017. Anlev will replace the entire escalator and walkway system in 12 phases, working down from Conduit Road, one section at a time. This will involve suspending escalator service for the section under work, with advance notice given to affected building owners, store operators and residents and information on detour walking routes provided.

Phase one of the refurbishment works commenced in early March 2018. Full replacement of the entire escalator and walkway system is scheduled for completion in August 2022.

To find out more, Voice of ATAL spoke to ATAL Engineering Group Chief Executive Officer Kevin Cheng, the project team's Andy Cheung (Director, Lifts and Escalators, Anlev Elex Elevator Ltd), Wyman Wong (Manager, Project Department, Anlev Elex Elevator Ltd) and Lo Kwok-wai (Project Manager, Anlev Elex Elevator Ltd).



香港的中環半山自動扶梯系統於 1993 年啟用，連接德輔道至干德道，橫跨 9 條街道，全長逾 800 米，攀升高度超過 135 米。

經過 25 年不斷運作，自動扶梯系統早過了服務周期，磨損老化，更換零件也有困難，故障情況和維修保養成本上升，載客量也已大大超出系統的原先設計。為應付日益增加的載客量、符合最新的安全標準和滿足機電工程署的要求，全面提升自動扶梯系統已刻不容緩。

安樂工程集團旗下的安力電梯被委以重任，負責這備受矚目的自動梯工程。

機電工程署於 2017 年 3 月，向安力電梯批出中環至半山自動扶梯系統的更新工程合約。安力電梯將更換系統內全部自動梯及自動行人道，工程分 12 期進行，由干德道開始，每次更新一段。施工期間，受影響路段的自動梯服務會暫停，安力電梯會事先通知受影響的大廈業主、商戶和居民，發放有關行人路改道的資訊。

第一期工程已於 2018 年 3 月初展開。整個系統所有自動梯及自動行人道更新工程，預計於 2022 年 8 月完成。

《樂訊》走訪了今次工程的團隊，包括安樂工程集團行政總裁鄭小藝、安力電梯有限公司升降機及自動梯總監張夏明、策劃工程部經理黃偉明與及策劃工程經理羅國璋，了解項目詳情。



### Overcoming Engineering Challenges

Refurbishing the system brings myriad technical challenges. Wyman Wong highlights three key ones. First is the very narrow worksite and physical constraints posed by the existing system, such as the escalator canopies. Next is how to deploy truck cranes for lifting purposes on the neighbourhood's narrow streets without unduly disrupting traffic. Third is the lack of data about the existing system, particularly during the initial design stage.

"As the contract requires the canopies be untouched, the usual method of lowering the escalator by crane into the shaft from above and installing it as one piece won't work. Our solution is to cut up each escalator into six pieces and

### 克服工程挑戰

翻新工程有很多技術困難，黃偉明闡釋三個最大挑戰。首先是現場環境非常狹窄，加上現有自動扶梯系統有很多限制，比如自動梯設有上蓋。二是街道狹窄，如何讓起重機在路上運作而不影響交通，是一大挑戰。三是現有自動扶梯系統並無數據可供參考，為初步設計工作帶來困難。

「安裝自動梯，一般是用起重機把自動梯整條吊下放進槽井。但由於今次合約規定，原有的自動梯上蓋不可改動，這方法便不可行。我們的方案，是把新的自動梯切成六段，從原有上蓋的兩端放進槽井，再把每段在安裝時接駁還原。」他說。這方案比一般安裝方法複雜，需要更多的細節安排配合。

「至於起重機，為了盡量避免影響交通，我們每天只有兩節的吊機運作時間，所以事前計劃必須十分精準，確保工程進度不會滯後。」他說。

黃偉明表示，由於現有自動扶梯系統的數據在工程初期非常缺乏，團隊要靠同事在日間對系統運作進行觀察，及在夜間進行量度勘察，才取得初步設計必要的技術數據。安力電梯由 2018 年 9 月起會接手系統的維修保養工作，因此數據來源已不成問題。

另一挑戰是合約訂定的工程時間極短。一般更換自動梯需時約六個月，但團隊今次須要在四個半月內，完成更換每部自動梯的所有工序，包括準備、安裝、調試、當局巡查檢測、及啟用前測試工作。不過，





insert them from the two ends of the covered space, re-connecting the pieces during installation,” he says. This complicates the installation process and necessitates additional logistical arrangements.

“As to cranes, we’re only allowed two hoisting sessions per day so as to minimise road traffic disruption,” he continues. “Meticulous advance planning is a must to avoid programme slippage.”

Data about the system was initially hard to come by. Wyman says the team had to rely on daytime visual observations and physical surveys at night, to obtain data for initial design. However, when the team takes up system maintenance in September 2018, access to data will no longer be an issue.

The tight refurbishment schedule also creates challenges. While escalator replacement would usually require a six-month window, the team has only four-and-a-half months to complete the preparation, installation, testing and commission, inspection and pre-opening trials of each escalator. Even so, Wyman is sure that this effort will be worthwhile as it will minimise inconvenience to the public.

## Adding Value to the Community

True to ATAL’s core values of “we commit, we perform, we deliver”, Anlev will add value to the new system. Andy Cheung says the refurbished system will not only comply with the latest safety standards and EMSD’s Codes of Practice, but will also come with energy efficiency features such as energy saving motors, variable speed drives, LED lights and service-on-demand functions.

Anlev will also add value via maintenance of the system. Anlev has participated in EMSD’s Registered Escalator Contractors’ Performance Rating ever since the scheme began in 2013, scoring the highest rating for 21 consecutive quarters.

“We can improve the reliability and availability of the escalator system, with much less downtime and greater convenience for users,” Andy says. The system will also be more visually pleasing, with colourful LED lights installed along the escalator skirt panels for better illumination – and interesting photos opportunities for tourists, too!

## Engaging the Neighbourhoods

Community engagement is a vital aspect of this extraordinary project. Kevin Cheng notes that minimising disruption to the community has been taken as seriously as the project’s engineering challenges.

“The project touches a unique community of diverse stakeholders: local and expatriate residents, tourists, businesses, young children and elderly – you name it. The mix of stakeholders and their needs change at different sections and phases of the project,” he explains. “As contractor, we have the role to assist the Government in addressing these various needs. Harmonious community relations are a must. This is not a conventional project.”

Anlev has already set in motion a comprehensive community engagement plan.

黃偉明相信，為了減低工程對公眾的不便，這一切努力都很值得。

## 為社區創造價值

安樂工程集團的核心價值是「重承諾・慎履行・創成果」，安力電梯秉承集團精神，為新自動扶梯系統創造價值。張夏明說，更新後的系統不單符合最新安全標準和機電工程署各項實務守則，更齊備高能效設施，例如節能發動機、變頻驅動器、LED 燈和按需求服務功能等。

安力電梯也會為新系統提供維修保養服務，為系統的運作增值。機電工程署自 2013 年推出「註冊自動扶梯承辦商表現評級」計劃以來，安力電梯一直積極參與，連續 21 季度取得最高評級。

「我們能大大提高新系統的可靠度和使用度，減少機件故障，更方便市民。」他說。新系統的外觀也將令人耳目一新，例如會沿自動梯裙板安裝色彩繽紛的 LED 燈，加強扶梯照明，對遊客取景拍照來說更是好消息！



## 維繫沿途社區

更新工程涉及的坊眾很多，備受矚目，是非常獨特的項目，因此社區聯繫溝通工作更為重要。鄭小藝表示，怎樣把工程對社區的影響減至最低，難度絕不下於工程挑戰，團隊也同樣認真地處理社區關係工作。

「這項目觸及一個非常獨特的社區，涵蓋各種持份者：本港市民、外國居民、遊客、商戶、兒童以至長者，任何年齡背景都有。隨著工程進入每一期的每一路段，牽涉的持份者組合和需要又會隨之改變。」他解釋說。「作為承辦商，我們的角色是協助政府滿足持份者的需要，確保和諧的社區關係。這不是普通的工程項目。」

安力電梯早已推出一連串的社區關係活動。羅國璋說，由 2018 年 2 月開始，團隊已在自動扶梯系統各處掛起橫額，介紹更新工程資料，又向行人派發更新工程單張，並向由干德道至皇后大道中的所有住宅和商戶，郵寄有關更新工程的資料。

安力電梯也成立了 24 小時電話熱線，解答公眾查詢，

Lo Kwok-wai says banners on the project have been displayed throughout the escalator system since February 2018. Leaflets have been handed out to alert users to the forthcoming works. A mass mail-out to all households and businesses from Conduit Road to Queen’s Road Central has also been completed.

Anlev has set up a 24-hour hotline to handle public enquiries, along with a project webpage that is also hyperlinked from the website of the Transport Department which owns the system. All materials display the project QR code and email address to facilitate direct access by the public.

Whenever roads are closed for escalator installation, Anlev’s bilingual traffic wardens will be on-site to brief motorists and pedestrians on re-routing arrangements. Additional handrails and lighting will be added to each section well before works begin, for the convenience of pedestrians.

## Brand and Morale Booster

The six-year contract is a substantial one for the escalator business, and one of the largest contracts in Anlev’s history. But its value to the company goes beyond business gains.

“Winning the contract has not only boosted the morale of the team, but also helps build up the Anlev brand,” Andy says. Anlev has also taken the opportunity to expand the team and deployed extra resources to project design and management, installation, maintenance, safety and other tasks.

Kevin Cheng echoes these sentiments.

“Engineering projects are usually not visible to the public and people have little idea about what we do. This project is different: it is highly visible and closely linked to the community. That the man in the street will be able to see and appreciate what we do means that this project will enhance Anlev’s image and help our team see the impact of our work on the community. This will bring tremendous satisfaction to staff, along with a strong sense of belonging to the Group,” he says.



又推出更新工程的專題網頁。市民從運輸署 (即自動扶梯系統擁有人) 的網頁也可登入這項目網頁。所有宣傳材料都列出項目的網頁二維碼和電郵地址，方便市民隨時直接聯絡安力電梯團隊。

工程進行期間，如必須封路以安裝自動梯時，安力電梯會安排雙語交通大使在現場協助駕駛人士和行人，告知有關改道安排。自動扶梯系統每一段施工前，也會預先加裝行人路扶手和照明設施，讓行人倍感方便。

## 提升品牌 激勵士氣

今次工程合約長達六年，在自動梯業界是相當大的合約，也是安力電梯歷來最大合約之一。不過張夏明強調，項目對公司的意義重大，絕不止於生意利益。

「贏得這份合約，不但激勵同事士氣，也大大提高了安力電梯品牌的知名度。」他說。安力電梯也趁這機會拓展團隊，比如增添人手和資源，進行設計、項目管理、安裝、維修保養、安全和其他工作。

鄭小藝的想法也一樣。「一般工程項目，市民大眾都不會留意或見到，也很少知道工程人員做了甚麼工作。這項目卻不同：它非常矚目、高調，也跟中環至半山的社區緊密相連。由於路人都能清楚見到我們的工作，更會欣賞我們的努力，因此我們不單能提升安力電梯的品牌形象，員工也能體會到他們的工作成效，原來與社會息息相關，更為社區帶來好處，大大增加同事的滿足感，也加強員工對集團的歸屬感。」他說。

## FACT FILE 項目簡介

<b>Total System Length:</b> 系統總長度：	over 800 metres 超過 800 米
<b>Total System Elevation:</b> 系統攀升高度：	over 135 metres 超過 135 米
<b>Number of Escalators:</b> 自動梯數目：	18 reversible one-way escalators, three reversible one-way walkways 18 條可轉換方向的單向自動梯，和 3 條可轉換方向的單向自動行人道
<b>First Opened:</b> 啟用日期：	October 1993 1993 年 10 月
<b>Daily Usage:</b> 每日用量：	about 78,000 passenger-trips every day 每日約 78,000 人次

<b>Refurbishment Period:</b> 更新工程期：	March 2018 to August 2022 2018 年 3 月至 2022 年 8 月
<b>Phasing of Works:</b> 施工分期：	12 phases 共有 12 期工程
<b>Current Works:</b> 目前工程：	Phase 1 (March 2018 to July 2018), replacement of escalators in sections 22E and 23E near Vantage Park on Conduit Road 第一期工程 (2018 年 3 月至 7 月)，更換 22E 及 23E 段的自動梯，即干德道慧豪閣旁



## Final Preparations for Hong Kong-Zhuhai-Macao Bridge in Good Progress 港珠澳大橋工程邁向最後階段



As the Hong Kong-Zhuhai-Macao Bridge (HZMB) project makes final preparations for its opening, we are happy to report good progress in our work for HZMB.

ATAL Engineering Group is one of the key contractors of the HZMB project, providing E&M engineering services such as building services, extra-low voltage systems, programmable logic controller and sewage treatment facilities for the HZMB Hong Kong Boundary Crossing Facilities on the artificial island, including the vehicle clearance plazas and ancillary buildings there.

We also provide automatic vehicle clearance support and immigration control systems at both inbound and outbound vehicle kiosks for customs and immigration checks of private cars, coaches and goods vehicles. To meet stringent security requirements and provide extra convenient services to motorists and passengers, we have deployed the latest technologies on vehicle tracking, license plate recognition, facial and finger-print detection and intrusion detection.

ATAL's subsidiary Anlev Elex Elevator Ltd also designed, manufactured and installed lifts in various buildings and offices on the artificial island, and will be responsible for their on-going maintenance.

Once operational, the HZMB will shorten the four-hour drive from Hong Kong to Zhuhai to less than an hour, facilitating further economic integration in the region. ATAL is delighted to have played a role in this infrastructure milestone.

港珠澳大橋即將開通，而工程亦已進入最後階段，在此希望分享集團的良好工程進度。

集團是此項目的重要承辦商之一，我們為大橋人工島上的香港通關口岸設施，包括島上的車輛通關廣場及各輔助建築物，提供各項機電工程服務，包括屋宇裝備、弱電系統、可程式控制器及污水處理設施。

集團同時亦為私家車、旅遊巴士及大型貨車出入境檢查亭提供車輛自動清關系統及入境管制系統。為達到嚴格的保安要求及方便駕駛者和乘客，我們採用了最先進科技，如車輛追蹤、車牌識別、面容及指紋感應以及入侵者探測技術等。

集團旗下的安力電梯有限公司亦為人工島上多幢建築物及辦公室設計、製造及安裝升降機，以及提供往後的維修保養服務。

大橋通車後，香港往珠海的車程將由原來的四小時，縮短至少於一小時，令香港更有效投入大灣區經濟發展。此項目為基建項目的重要里程碑，安樂工程十分榮幸能參與其中。



## Three-Year Fire Services Maintenance Contract for Hong Kong Government 為期三年香港政府消防裝置維修合約



The year 2018 kicked off with auspicious news! The fire services team in our maintenance and servicing unit has secured another major triennial term contract from the Electrical and Mechanical Services Department (EMSD) on the first working day of the year.

The three-year contract is for the maintenance and repair of, and alterations and additions to fire services installations at the Government Office Buildings on Hong Kong Island and Island (South) for the Hong Kong SAR Government.

This is the second triennial term contract awarded to our fire services team by EMSD. In mid 2017, we won a term contract of similar size for the maintenance and repair of, alterations and additions to fire services installations in various venues of the Kowloon and New Territories Transport and Security facilities. The fact that we have been entrusted with ongoing maintenance and repair responsibilities for mission critical fire services systems for the Government underscores the trust and confidence placed in ATAL by the client.

Both contracts testify to our fire services team's excellent track record and deep experience in maintenance and repair, as well as alterations and additions jobs. We are confident that the year will bring further business wins.

2018 年剛開始就收到令人振奮的消息！維修部 - 消防裝置團隊在新年第一個工作天即獲得機電工程署一份為期三年的重要合約。

該合約是為香港特別行政區政府轄下在港島及離島（南）區的辦公大樓的消防設施，提供保養及維修、加裝及改動服務。

此為第二份由機電工程署批予維修部 - 消防裝置團隊的三年合約。2017 年年中，我們獲得一份相等規模的工程合約，包括為多個九龍及新界區的紀律部隊場地進行維修及保養、改裝及加裝消防裝置。能夠持續為政府重要的消防設施進行保養及維修，足證客戶對安樂工程的信任及信心。

集團成功取得兩項工程合約，證明我們的消防裝置團隊有優秀往績，在保養及維修、改裝及加裝方面也經驗豐富。我們對今年發展充滿信心，新業務必陸續有來。





## Turn Food Waste to Energy 轉廢為能



Always at the forefront of environmental engineering, ATAL has won a contract in end of 2017 from the Environmental Protection Department (EPD) to design, build and operate facilities for the Food Waste/Sewage Sludge Anaerobic Co-digestion Trial Scheme. This is one of EPD's initiatives to help raise Hong Kong's overall food waste treatment capability.

The Trial Scheme aims to confirm the technical feasibility and installation requirements of using existing sewage treatment facilities for food waste/sewage sludge anaerobic co-digestion. Under the Scheme, ATAL shall construct food waste pre-treatment facilities at the existing Suen Wan Leachate Pre-treatment Works in Tai Po to treat up to 50 tonnes of food waste per day, and then transport it to the existing sewage sludge anaerobic digestion system at the Tai Po Sewage Treatment Works for food waste/sewage sludge for co-digestion.

Commissioning of the Trial Scheme is scheduled for 2019, with a six-year operation period for ATAL. We are delighted that our environmental engineering team will be taking Hong Kong's food waste/sewage sludge anaerobic co-digestion technology and capability to a new level of excellence and contribute to the Government's waste-to-energy sustainability strategy.

作為環境工程界的先驅，安樂工程在去年底獲得由環境保護署批出的「廚餘、污泥共厭氧消化試驗計劃」的設計、建造和營運合約。這是環境保護署提升本港處理廚餘能力的重大措施之一。

試驗計劃旨在研究及確立利用現有污水處理廠的設施，進行廚餘與污泥共厭氧消化的技術可行性及裝置要求。按試驗計劃要求，安樂工程將於船灣滲濾液預處理廠現址建設廚餘預處理設施，該設施將每天預處理最多 50 公噸廚餘，然後運送至大埔污水處理廠現有的污泥厭氧消化系統，進行共厭氧消化。

試驗計劃預計可於 2019 年開始運作，安樂工程的相關合約包括 6 年的營運期。我們的環境工程團隊很榮幸能協助提升香港污泥共厭氧消化技術及能力至更高水平，並為政府轉廢為能的可持續發展策略作出貢獻。



## HKCEC's First IoT Solution for Facility Management 會展中心首個物聯網設施管理工程



As a key player in new technology, we recently secured a major contract from the Hong Kong Convention and Exhibition Centre (HKCEC) to upgrade its building management system (BMS) with Internet-of-Things (IoT) infrastructure and applications.

"We use IoT in managing our facilities to attain our visionary goal of ambient intelligence. In an ambient intelligence world, devices work in concert to support people in carrying out their daily activities. I have pleasure to have ATAL and their partner to grow with us for the technology transformation in HKCEC", says Dr. Stewart Wan, HKCEC Director Facilities Planning and Operations. We shared the passion and incorporated IoT innovation into our solutions for enhancing the overall efficiency of work.

The contract covers replacing the current BMS at Phases 1 and 2 and the Atrium Link Extension by a custom-designed BMS with around 700 IoT sensors installed in the areas of the Grand Hall, exhibition halls, and public hallways, enabling centralised control of real-time monitoring, measuring and optimisation of the building's performance.

The sensors are wireless, so implementation costs and installation timeframe can be minimised. Connected to the central BMS via a LoRa WAN gateway, the sensors transmit real-time data on water leakage, temperature, humidity and indoor air quality, while end-users can access the data from a cloud-based platform to obtain actionable insights and intelligence for auditing, analysing and reporting purposes, greatly enhancing HKCEC's ability to manage risk, predict problems and streamline workflow.

This will be the first IoT network at HKCEC, a client we have worked with since 1997. The IoT platform marks an important milestone for achieving a bigger picture in ambient intelligence in HKCEC. We are delighted to have the opportunity to deploy IoT technologies and big data analytics to add value to HKCEC.

作為新技術的先驅，我們最近贏得為香港會議展覽中心（會展中心）應用物聯網 (IoT) 設施及技術，提升其屋宇設備管理系統的重要工程合約。

會展中心設施規劃及營運總監溫漢池博士表示：「我們的目標是應用物聯網於設施管理，以落實環境智能的願景。在智能環境中，各類儀器互相連繫以方便我們日常運作。我們很榮幸有安樂工程及其伙伴與我們並肩同行，為會展中心的科技蛻變一同努力。」

工程合約涵蓋更換會展中心第一期、第二期及中庭擴建工程的現有屋宇管理系統。新系統會為客戶度身訂造，於各個大會堂、展覽廳及走廊設有 700 多個物聯網感應器，可進行實時中央監控、量度及優化建築物各種設施的操作表現，讓設施發揮最大效益。

由於感應器是無線的，因此安裝時間和使用成本可減至最低。感應器經 LoRa WAN 接駁中央屋宇管理系統，傳送有關漏水、溫度、濕度及室內空氣質素的實時數據，而客戶也可從雲端平台取得數據，全面掌握各系統的運作狀況，以作審查、分析及報告之用，大大加強了會展中心在風險管理、預測事故和改善工作流程方面的能力。

安樂工程由 1997 年起已為會展中心服務，今次也是會展中心首個物聯網項目，亦標誌著他們在落實環境智能方面的重要里程碑，我們很高興能為客戶落實應用物聯網技術及應用大數據分析，為客戶增值。



Dr. Stewart Wan, HKCEC Director Facilities Planning and Operations  
香港會議展覽中心設施規劃及營運總監溫漢池博士



## Winning the Prestigious Tien-yow Jeme Civil Engineering Prize and Luban Award 集團項目榮獲詹天佑獎及魯班獎

ATAL's excellent engineering and customer services have won recognition again in two prestigious awards from the Mainland. The Stonecutters Island Sewage Treatment Works project, in which we participated, received the 15<sup>th</sup> Tien-yow Jeme Civil Engineering Prize from the Beijing Tien-yow Jeme Foundation for Development of Science and Technology in Civil Engineering at a prize presentation ceremony held on 3 June 2018 in Beijing.



The prize aims to recognise and encourage civil engineering projects with outstanding achievements in innovative technology application, with emphasis on project design and works implementation. Entries must be nominated by relevant learned societies and government departments. We are honoured by the award and take it as an impetus to strive further in future.



該獎項旨在表彰及獎勵在創新科技與技術應用方面，成績卓著的土木工程項目。評審著重工程設計及施工技術，參選者須得到相關學會與政府部門推薦，我們非常榮幸可以參與並得獎。獎項既肯定了集團的實力，也激勵我們不斷奮發向前。



安樂工程的優質工程服務再次獲得業界肯定，並獲得兩項內地工程界殊榮。集團參與的昂船洲污水處理廠項目，榮獲由北京詹天佑土木工程科學技術發展基金會頒發的「第十五屆中國土木工程詹天佑獎」。頒獎禮已於 2018 年 6 月 3 日於北京舉行。

The China Unicom (Hong Kong) Global Center project which we participated in has received the Luban Award (National Quality Engineering) (Overseas Works) from the China Construction Industry Association, a top honour in China's construction sector.



ATAL provided installation and testing services to turnkey E&M equipment and systems for the project, as well as MVAC, electrical, fire services and building management systems for the data centre building. We are particularly delighted by the recognition given to ATAL for our high standards in project design, management and engineering quality.

我們參與的中國聯通（香港）環球中心發展工程項目，獲得由中國建築業協會頒發的「中國建設工程魯班獎（國家優質工程）（境外工程）」。該獎項乃中國建築行業工程品質的最高榮譽，集團為該項目的整套機電設備和數據大樓的暖通空調、電氣消防及屋宇管理系統，提供安裝及測試服務。取得這個獎項對安樂工程的項目設計、管理及工程質量是極大嘉許，我們倍感高興。



## Lighthouse Club Design for Safety Award for San Wai Project 新圍項目獲明建會安全施工設計獎

Every year the Lighthouse Club recognises the leading efforts of organisations and individuals in improving health and safety in the Hong Kong construction industry via several awards. This year the ATAL-Degremont-China Harbour Joint Venture is the recipient of one of its awards – the Lighthouse Club International Design for Safety Award, in recognition of the joint venture's contribution to safety and health in the San Wai Sewage Treatment Works Phase 1 upgrading project. The project is scheduled to be completed in 2019, followed by a 15-year operation contract.

The safety award recognises the construction industry designer or design team that has contributed the most in eliminating or mitigating health and safety risks during construction, cleaning and operation, maintenance and the eventual modification or removal of the asset. The award ceremony was held on 16 March 2018 and the honour shared with our valued partner. Congratulations to the environmental engineering team!

明建會每年均頒發獎項予多個機構及人士，以表揚其積極推廣本地建造業職業安全的努力。今年，安樂工程 - 得利滿 - 中國港灣聯營榮幸成為「明建會國際安全施工設計獎」得獎者之一，嘉許聯營公司在新圍污水處理廠第一期工程項目中推廣施工安全的貢獻。工程預計在 2019 年完成，往後更有 15 年的營運合約。

此安全獎項旨在表揚建造設計師或設計團隊，於建造、清理與操作、維修保養以至未來改裝或拆除工程設施時的過程中，致力減低職業安全及健康風險的成績。頒獎禮已於 2018 年 3 月 16 日舉行，我們並與聯營夥伴分享殊榮。恭喜環境工程部團隊！



## ATAL Wins Four DSD Construction Sites Housekeeping Awards 安樂工程取得渠務署工地整潔獎四個獎項

At the Drainage Services Department's Construction Sites Housekeeping Award presentation ceremony on 21 March 2018, ATAL colleagues won four awards for their excellent performance in worksite housekeeping and safety. ATAL received two awards under "The Best Construction Site Housekeeping Awards" for its provision of E&M facilities at O Tsai Sewage Pumping Station on Lamma Island (under cat. c, E&M works contracts), as well as provision of O&M services for various sewage treatment and stormwater facilities during 2015-2018 (cat. e, maintenance contracts of E&M branch), respectively.

The other two were "Meritorious Awards" for the China State-ATAL Joint Venture on the HATS2A upgrading works at the Stonecutters Island Sewage Treatment Works sludge dewatering facilities, and for the ATAL-Degremont-China Harbour Joint Venture on the "design, build and operate" works at San Wai Sewage Treatment Works Phase 1 (both under cat. a, large scale civil works contracts).

Congratulations again to our environmental engineering team!

渠務署的工地整潔獎勵計劃頒獎典禮已在 2018 年 3 月 21 日舉行，安樂工程共獲四個獎項，嘉許集團在工地整潔方面的出色表現。其中由集團為南丫島澳仔污水泵房提供機電設施的項目（丙類組別—機電工程合約）、及為各區污水處理及防洪設施提供操作及維修保養服務（2015-2018）（戊類組別—維修合約（機電工程科））兩個工程項目，都分別奪得「最佳工地整潔獎」。

而由安樂工程 - 得利滿 - 中國港灣聯營為淨化海港計劃第二期甲昂船洲污水處理廠改善工程提供的污泥脫水設施，及為新圍污水處理廠（第一期）提供的設計、建造及操作工程這兩個聯營項目（二者皆為甲類組別—大型土木工程合約），也分別獲得「優異獎」。再次恭喜環境工程部團隊！





## Canatal Listed in Shanghai Stock Exchange 佳力圖上海證交所主板上市

Nanjing Canatal Data Centre Environmental Technology Co. Ltd, an associate of ATAL Engineering Group, was successfully listed on 1 November 2017 on the main board of the Shanghai Stock Exchange (SHA: 603912). It also became the 100<sup>th</sup> public listed company in Nanjing. Our hearty congratulations!

Founded in 2003 in Nanjing, Canatal engages in the design, manufacture and sale of precision air conditioning products and services, with a focus on providing energy saving and temperature control equipment as well as one-stop solutions for precision environments such as data centres. Its extensive product lines include humidifiers, coolers, temperature control equipment, fluorine pumps and other cooling agents.

With businesses in more than 30 major Mainland cities, Canatal remains committed to conducting R&D in high-tech products and maintaining its leadership position in the precision air conditioning industry.

Looking forward, the company will strive further to provide ever better energy saving solutions for data centres worldwide, leveraging its edge in environment control and energy saving technologies.

集團的聯營公司南京佳力圖機房環境技術股份有限公司（佳力圖）已於 2017 年 11 月 1 日於上海證券交易所主板成功上市（股份代號：603912），並成為南京市第一百家上市公司，可喜可賀！

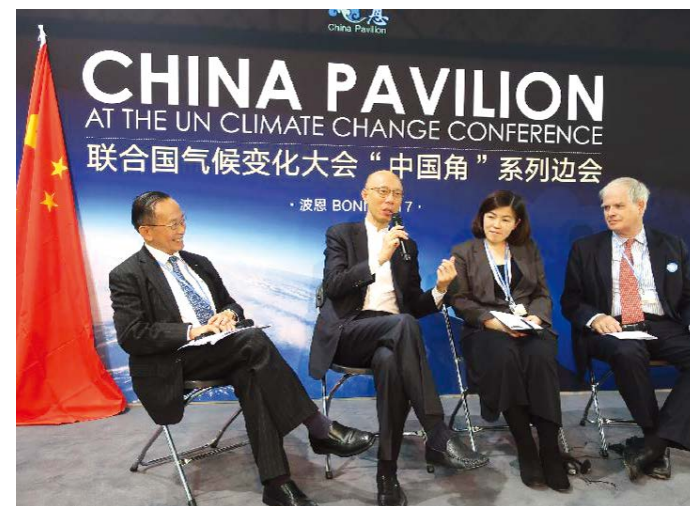
佳力圖在 2003 年於南京創立，從事精密空調產品及服務的設計、生產及銷售業務，專注提供節能及溫度監控設備，及為數據中心等精密環境提供一站式方案。產品系列繁多，包括空氣加濕器、冷凍機、溫度監控設備、氟氣泵和冷卻劑等。

佳力圖業務遍佈內地三十多個主要城市，公司會繼續專注高科技產品的研發，保持在精密空調行業的領先地位。

展望未來，佳力圖會善用公司在環境控制和節能技術方面的優勢，致力為世界各地的數據中心提供精益求精的節能方案。



## Combating World Climate Change 應對全球氣候變化



Ir Dr Otto Poon, ATAL Engineering Group Chairman and ardent advocate against climate change, noted at the United Nations Framework Convention on Climate Change (COP) in 2017 in Bonn, Germany that ATAL would continue to promote sustainability via advanced E&M engineering solutions.

The objective, as agreed at the 2015 Paris COP, is to limit carbon emissions so that any atmospheric temperature rise by mid-21<sup>st</sup> century will be less than two degrees Celsius.

集團主席潘樂陶博士工程師一直非常關注氣候變化問題，多年來積極參與應對氣候變化的活動。他於 2017 年於德國波恩舉行的「聯合國氣候變化框架公約會議」上表示，集團會繼續以先進的機電工程方案，致力推動環保。

根據 2015 年在巴黎國際氣候變化大會訂立的協議，各國同意致力減少溫室氣體排放，務求在 21 世紀中之前，全球氣溫不會上升超過攝氏兩度。

## "Automation" Key to Smart Cities 「自動化」為智慧城市關鍵



At the 30<sup>th</sup> anniversary symposium of HKIE's Control, Automation and Instrumentation Division on 9 February 2018, ATAL Engineering Group Chairman Ir Dr Otto Poon highlighted in his keynote address that automation using IoT and data analytics would be crucial for future smart cities.

With the theme of "Engineering a New Horizon from 70 Years Foundation – The Automation Era", the symposium provided a forum for engineering professionals to exchange ideas and experiences.

安樂工程集團主席潘樂陶博士工程師獲邀出席由香港工程師學會 - 控制、自動化及儀器儀表界別舉辦的「Engineering a New Horizon from 70 Years Foundation – The Automation Era」週年研討會，並擔任主講嘉賓之一，分享物聯網及數據分析自動化對未來智慧城市發展的重要性，更與多名工程界從業員交流意見及相關經驗。



## ATAL Promotes Sustainable Development of the Industry 安樂工程推動行業可持續發展

ATAL does not merely focus on doing business, but also emphasises the importance of sharing our knowledge and experience with the industry. Recently, ATAL's Director of Information, Communications and Building Technologies, Ir Dave Chan, was invited as a guest speaker to share his insight on IoT technology and its application in building energy efficiency at the Build4Asia 2018 Conference and the Institution of Engineering and Technology ICT Conference 2018.

Our sharing is not limited to business conferences. Ir Dr Sammy Wan, Manager of Quality, Safety and Environment was invited to share his experience in safety management of lift maintenance, a current topical issue in Hong Kong and various fail-safe designs for lifts, during the Construction Safety Week 2018 jointly organised by Development Bureau and Construction Industry Council in May.

ATAL looks forward to further sharing its knowledge and experience with various parties in the industry in the near future.

在發展業務的同時，安樂工程亦十分注重業界知識和經驗的傳承。最近，安樂工程的資訊、通訊及屋宇科技總監陳志雄工程師，獲邀出席 Build4Asia 2018 及國際工程技術學會 ICT 2018 會議，分享他對物聯網科技應用在建築物節能方面的見解。

我們的分享交流也不限於業務會議。安樂工程的品質、安全及環境事務經理溫建文博士工程師亦獲邀出席由發展局及建造業議會於五月聯合舉辦的 2018 建造業安全周，就香港近來備受關注的電梯安全問題，分享其對升降機維修工作安全管理，以及適用於升降機的失效安全設計的見解。

安樂工程期待在不久將來，有更多機會與業內各方共享知識和經驗。





## Science Park Expansion Project Commencement Ceremony 香港科技園擴建工程啟動儀式



The building services works of the Hong Kong Science Park Expansion Stage 1 project commencement ceremony took place on 30 January 2018, attended by representatives from ATAL, Hong Kong Science & Technology Parks, Hip Hing Joint Venture (SPX1), Wong Tung Group, Beria Consultants and J. Roger Preston.

ATAL's contract covers installation of major building services systems including MVAC, electrical, fire services, plumbing and drainage as well as building management systems. The project is scheduled for completion in 2019.

香港科技園擴建第一期的屋宇裝備項目於2018年1月30日舉行動工儀式。安樂工程集團聯同香港科技園、協興建築聯營、王董集團、貝鐸華顧問及澧信工程顧問的代表，在工地現場舉行簡單而隆重的動土儀式。

安樂工程的合約涵蓋安裝主要的屋宇裝備，包括暖通空調、電氣、消防、給排水及樓宇管理系統，預計在2019年竣工。

## Shanghai Jiao Tong University-ATAL Scholarship 上海交通大學樂陶獎學金頒獎

Senior executives from ATAL Engineering (China) presented the Shanghai Jiaotong University-ATAL Scholarship to winning students on 24 November 2017 on the Shanghai campus. The occasion marked once again our continued commitment to nurturing young talent for the environmental engineering industry via scholarships and related initiatives.

Congratulations to the winners!

集團國內辦事處管理層在2017年11月24日，於交通大學校園頒發「上海交通大學樂陶獎學金」予獲資助學生，再次彰顯集團致力為環境工程界培育新血的努力。我們會持續透過獎學金及其他獎勵計劃，鼓勵年青人為環境工程作出貢獻。



## Ci Xi Water Visits Jimo Sewage Treatment Plant in Qingdao 慈溪水務往訪青島即墨污水處理廠



A delegation from the Ci Xi Water Group visited ATAL's Jimo Sewage Treatment Plant in Qingdao in April 2018 and was particularly interested in our AMSFS II magnetic high rate clarifier. The visitors were received by senior environmental engineering executives from our Shanghai office. Both sides exchanged technical experiences with regards to Ci Xi Group's Zhou Xiang Sewage Treatment Plant enhancement and renovation project.

浙江省慈溪水務集團一個考察團在2018年4月前往安樂工程的青島即墨污水處理廠考察，並對AMSFS II磁介質高效沉澱池項目極感興趣，到現場參觀。我們環境工程部上海辦事處管理層親自接待考察團，並就「慈溪周巷污水處理廠提標改造項目」進行技術交流。

## ATAL's R&D Success: IoT and Big Data Analytics for Chiller Plant Optimisation 集團研發成功案例：以物聯網及大數據優化製冷機組運作



Our in-house R&D team has developed an IoT-based control software to optimise chiller plant performance. The Chiller Plant Control Optimisation System (CPCOS) and Fault Detection and Diagnosis System (FDDS) have proved successful at various prestigious buildings in Hong Kong and added great value to clients' energy management initiatives.

A key challenge in chiller plant control optimisation is identifying the optimum operation point of HVAC systems. Instead of using design data, our unique approach is to use advanced mathematical models and numerical iterations of real-time big data which reflect the actual performance of HVAC equipment to determine the optimal operation point.

Using advanced control algorithms, the CPCOS automatically calculates the optimal operation sequence of HVAC systems. It also makes accurate predictions of ambient conditions and influencing parameters such as temperature, humidity, cooling load and energy consumption, feeding the building management system with real-time optimisation commands and settings. The FDDS, through an IoT network and data analytics, detects faults in real time; identifies fault causes, severity and consequences; and sends automatic alerts to respective personnel.

We also use a secure cloud-based platform from which real-time chiller plant data can be accessed via mobile devices by O&M personnel for monitoring and diagnosis anytime anywhere, saving time and energy costs for clients.

我們的內部研發團隊運用物聯網軟件，成功研發出提升製冷機組運作功率的方案，以發揮其最大效益。這套分別名為「製冷機組控制優化系統」及「故障偵測及診斷系統」的方案，已於本港多幢著名建築物使用，證明對樓宇的能源管理工作有莫大裨益。

要讓製冷機組發揮最大效益，主要困難是找出通暖空調系統的最大效益運作點。我們捨用一般的系統設計數據，而是以實時大數據為基礎，以先進的數學模型及數值迭代法去運算，找出通暖空調設備的最大效益運作點。

「製冷機組控制優化系統」採用先進的控制演算法，自動計算出通暖空調系統最大效益的操作程序，並能準確預計各種環境條件和影響因素，例如溫度、濕度、製冷負荷及能源消耗等，將實時的指令和設定傳送至屋宇管理系統，讓製冷機組的運作隨時都能發揮最大效益。至於「故障偵測及診斷系統」則透過物聯網及大數據分析，進行實時故障偵測，並能找出故障成因、嚴重程度和後果，即時自動向有關人員發出警示通知。

我們也採用了安全的雲端平台，讓操作維修保養人員可隨時隨地，以流動裝置獲取有關製冷機組的實時數據，方便監控系統和診斷故障，為客戶省時又節能。



## Running for Community Chest Rehabilitation Services 為公益金復康服務獻力

A record 120 runners from ATAL took part in the Community Chest Corporate Challenge on 28 January 2018, with excellent results. One of our colleagues won the men's half-marathon, while another won a silver in the men's 10km. The event aimed to raise funds for rehabilitation and aftercare services sponsored by the Chest.

安樂工程共有 120 位跑手出戰 2018 年 1 月 28 日舉行的公益慈善馬拉松，參加人數打破紀錄並取得卓越成績，我們兩位健兒更摘下半馬拉松男子組冠軍及 10 公里男子組亞軍。賽事籌得的善款，將撥捐公益金資助之「復康及善導服務」。



## Running up the Hong Kong ICC for Charity 勇闖香港 ICC 籌款

In another charity event, ATAL sent a team of four to take part in the SHKP Vertical Run – Race to Hong Kong ICC in December 2017. The team was the fifth fastest, at only 15' 24".

We support sports and encourage more colleagues to join the vertical run next year, for fun and charity!

安樂工程四位同事組隊參與 2017 年 12 月的「新地公益垂直跑 – 勇闖香港 ICC」企業組隊際接力賽。隊伍以 15 分 24 秒的佳績完成賽事，位列第五名。

我們鼓勵員工積極參與體育活動，期望來年有更多同事參加垂直跑，分享運動行善的喜悅！



## Champion of Walk-up Jardine House 齊步上怡廈接力賽奪魁

ATAL won the Walk-up Jardine House men's team relay! Completing the 49-storey race at a mere 3'46", our five-member team truly demonstrated the ATAL spirit of vitality, collaboration and perseverance. The event, held on 18 March 2018 by the Jardine's Group, raised funds for MINDSET, the Group's initiative to promote mental health.

安樂工程勇奪「齊步上怡廈」男子團體接力賽冠軍！五位隊員以 3 分 46 秒的佳績完成攀登樓高 49 層的中環怡和大廈，盡顯安樂工程的活力、團隊精神及堅毅。活動於 2018 年 3 月 18 日由怡和集團舉辦，為集團旗下推動精神健康的「思健」籌款。

## ATAL Basketball Team Scores Good Result 安樂工程籃球隊獲得佳績

The ATAL basketball team was formally established in 2017! This is another example showing that at ATAL, work-life balance and teamwork are as important as doing business.

To enhance the team's skills and team spirit, a training programme with a senior basketball coach was organised. It is excited that the team won the third place in Construction Industry Council Basketball Competition 2018. They will also represent ATAL to take part in other open competitions in future and strive to get the best result.

安樂工程集團籃球隊已於 2017 年正式成立！這再次證明集團除了重視業務，也同樣重視員工的工作與生活平衡及培養團隊合作精神。

我們更為球隊請來資深籃球教練進行訓練，教授籃球技巧，以提升隊員的技術及團隊默契。籃球隊在出戰 2018 建造業議會籃球邀請賽中奪得碟賽組季軍，實在可喜可賀。籃球隊亦會代表集團陸續參與各項公開比賽，為集團爭取好成績。



## Athletics for Charity at Construction Industry Sports Day 建造業運動會慈善田徑比賽

We are delighted that ATAL staff athletes have performed well again at the Construction Industry Sports Day cum Charity Fun Day 2017 organised by the Construction Industry Council on 5 November 2017. The team took part in various events, winning a gold medal in women's softball throw and a silver in men's 800m race. A big applause to the team!

由建造業議會於 2017 年 11 月 5 日舉辦的「建造業運動會暨慈善同樂日」，安樂工程健兒再次取得驕人成績，令人振奮。我們的精英隊員分別參與不同的賽事，更在女子推鉛球項目中贏得 1 面金牌，及在男子 800 米賽事中奪得 1 面銀牌。恭喜得獎團隊！

## Dual Prizes at ACRA Bowling Competition 2018 勇奪香港空調及冷凍商會保齡球比賽 2018 兩獎項

Bowling enthusiasts will be delighted to know that ATAL has won two prizes at the Hong Kong Air-Conditioning and Refrigeration Association Ltd (ACRA) Bowling Competition 2018 Hilti Cup held on 4 May 2018. One of our teams won the 2<sup>nd</sup> runner-up and the "highest single game" trophies.

Congratulations to our colleagues whose excellence and teamwork made them outstanding ATAL ambassadors!

安樂工程保齡球團隊參加了 2018 年 5 月 4 日的「香港空調及冷凍商會保齡球比賽 2018 Hilti 盃」，其中一支隊伍更勇奪兩個獎項，分別為團體季軍及單局分數最高隊伍獎。

同事的優異成績和團隊默契，令他們成為安樂工程的傑出大使，恭喜各位得獎者！





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## **ATAL Engineering Group** **安樂工程集團**

**Group Headquarters 集團總部**  
13/F, Island Place Tower, 510 King's Road,  
North Point, Hong Kong  
香港北角英皇道510號港運大廈13樓  
Tel: (852) 2561 8278  
Fax: (852) 2565 7638  
Email: [info@atal.com](mailto:info@atal.com)  
Website: [www.atal.com](http://www.atal.com)

