



# 香港空調及冷凍商會有限公司 THE HONG KONG AIR CONDITIONING AND REFRIGERATION ASSOCIATION LIMITED

Newsletter **Winter 09**



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## MESSAGE FROM THE PRESIDENT



**Daniel Chong**  
President

Thanks for the positive measures from HKSAR in launching of the core projects and the A&A works, plus the recovery of the world-wide economy, each and everyone of us participating in the building services industry are gearing up for the great journey through life again after having years of difficulties if not being drained-off from the market. While we are shaping ourselves to the foreseeable opportunities on the up-coming massive projects both from the government, public & commercial sectors and the re-activation on the Macau projects, a worry on the labour force is becoming a concern to some fellow members.

Making money is, of course, the fundamental consideration in maintaining our business. However, the core value of our professions is far more than just monies. Each level of the project and sales team, different tiers of sub-contractors and suppliers; down to the front-line, the labour sub-contractors and the direct employed workers etc., all play a part in contributing to the success of a project. Shortage of skillful technical personnel in a developed city like Hong Kong is indeed a great concern to the construction industry. Would the youngsters join the lifelong career with the construction industry if there is no improvement on the working environment, no planned training programme, no reasonable pay scale or better remuneration according to different level of practical skill? Worse still, the public image on our professions is relatively poor compared with others. All such are the result of the cut-throat competitions, companies can hardly survive with the rock-bottom contract price, how they can afford even for better treatment on staff need not to mention on allocation of resources on training programme and career promotion.

The way forward on new buildings are focused on green, energy efficient, better indoor air quality and sustainable construction plus emphasize on safety at work, quality operation and maintenance. The standard of MVAC industry would certainly be uplifted to another height. All such do require not only reasonable contract price but extra funding to make the project possible. The requirement on skillful technical personnel would be starting from the planning and construction phases, testing and commissioning, system operation and re-engineering over a period of time till the end of the MVAC system servicing life cycle. Let's take positive steps to reunite and promote the core value of our professions.

Care, sharing, love and active participation make all becoming possible. What can you offer to people of Hong Kong and for our next generations? A healthy life starts from breathing better air.....this is our professions! •

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## OBITUARY

### *In Memory of Mr. C.O. Synn*

We are sad to report that Mr. C.O. Synn, ACRA Honorary Life Present, passed away on September 11, 2009. Mr. Synn was one of the founding members of ACRA 48 years ago and had dedicated his entire professional life to the development and wellbeing of Hong Kong's Air Conditioning and Refrigeration industry. He had been a very successful businessman well respected by the industry and all who have the opportunity working with him, doing business with him or seeking his professional insights for any HVAC challenges. ACRA has lost one of its founders while the Hong Kong HVAC industry has lost one of the greatest forefathers of our time. The ACRA council has conveyed our condolences to Mr. Synn's family and wished them well during this time of family difficulties. Though Mr. C.O. Synn had left us, his professionalism and dedicative spirit will live forever in the heart of everyone in ACRA council and others in the industry.

<for and on behalf of ACRA Council>

## THEME ARTICLE



### District Cooling System

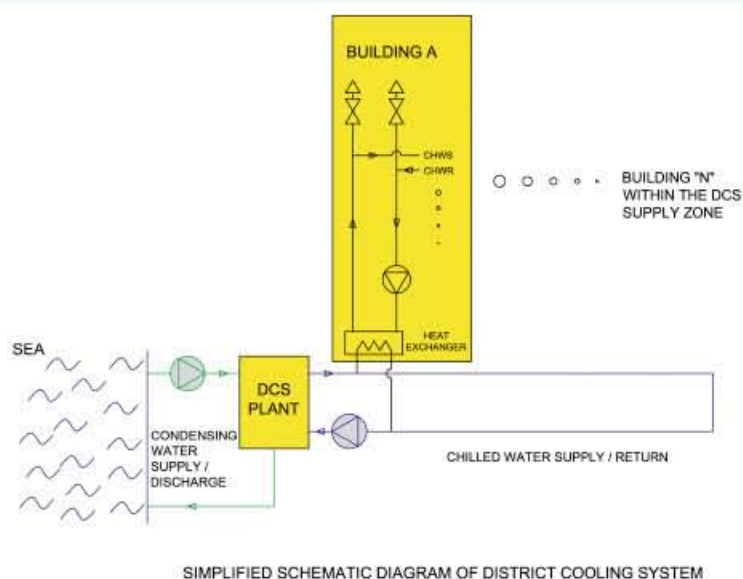
By: Daniel Chong FHKIE, MIME, MCIBSE, MIMarE, MIE (Aust)

The first Hong Kong District Cooling System (DCS) will be constructed in 3 phases at Kai Tak Development serving the air conditioning loading demand of the public and private non-domestic development. The DCS initially generates cooling capacity of 17MW by the end of 2012 to the full capacity of 284MW in 2021 onward. According to the information from HKSAR, over 32% of the electricity consumption in Hong Kong is used in air-conditioning system. It is vital important to implement energy efficient air-conditioning system and focus on sustainability, better and greener environment for a better place of living and to build with considerations for our next generations.

The overall approach on DCS is to centralize individual air conditioning plant for buildings of a county, of course the chillers size and scale of a DCS plant is much larger. A closed loop underground pipes to be constructed at strategic locations. By means of heat exchangers and pump stations, chilled water is distributed to all buildings according to the loading demand. Since the block-load characteristic for individual establishment are different, the overall energy consumption of DCS can be 20% to 35% less than individual chiller plant.

If there is no conditioning plant installed inside a building, less irritated plant noises is generated and emitted to the adjacent premises, no hot and humid air is discharged to atmosphere. It is not just one building but the entire district located within the DCS supply zones. By implementing the full plant capacity in about ten years from now, the maximum annual saving in electricity consumption can be up to around 85 million KWH and the possible reduction of carbon dioxide emission per annum is over 59,000 tonnes. How nice it is if our office are located at such a healthy working environment that the outdoor conditions are less polluted which in turn contributes to providing better indoor air quantity too.

Further to attending the project technical forum, ACRA have had extended our observations and suggestions in formulating the overall planning, design and assessment on the prequalification document to EMSD in May 2009. We are looking forward to celebrating the success of the project and witnessing in setting a new height to the MVAC supply system of Hong Kong in the coming years.







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隨著科技不斷進步，很多工作已經被機器、科技或電腦軟件所取代。但唯獨是人們的經驗及創意，才是推動所有行業向前的基本原動力。而陳鑑生先生 - 我們後輩見到他都會喊一聲「師傅」的一位人物，他的故事，他不可多得的50年行內經驗，十分值得我們借鏡。

### 《心繫祖國的青年》

1952年陳鑑生於華仁書院中學畢業後毅然前往內地武漢，入讀「華中工學院」（現稱為「華中科技大學」），繼續攻讀熱能動力專業及於56年畢業後留校任教。在50年代物資貧乏及政治環境不十分穩定的情況下，當其他人都想盡辦法尋求出國的時候，為什麼陳鑑生反而有這個不一樣的選擇呢？雖然他自小接受殖民地教育，但有感中國積弱太久，而身為中國人的他，有必要利用自己的專長來幫助國家進步。雖然當時缺乏資源，但陳鑑生卻在內地生活了10年，在國內為這些回流華僑提供簡陋的宿舍，並在工學院當教研室主任。直至後來經歷了「大躍進」，以至中蘇交惡；當時中國經濟陷入危機，內地的生活條件越來越困難，才無奈於1962年返港。

### 《事業由我創》

返港後，陳鑑生於1963年加入怡和機器有限公司冷氣部擔任工程師。憶及在怡和工作的歲月，最教他難忘的便是香港中區海水供應設備工程。這項工程由JRP設計，涉及當時香港置地公司旗下位於海傍至電車路一帶的商廈，包括太子大廈、歷山大廈、康樂大廈（現為怡和大廈）和剛開業的文華酒店等。由於工程規模龐大，陳鑑生以及其同事都需要解決在安裝設備上出現的各種難題；有時甚至在下班後，腦海裡還不停浮現怎樣分配管道系統的想法。雖然工作量很吃重，但由於當時行內普遍只由一位外籍主管，帶領著幾位工程師去管理工程項目，所以無論在行政或人事上，都較現在簡單得多。



陳鑑生 Mr. Y S Chan

累積了更多的工作經驗和人脈網絡後，陳鑑生與黃秉槐先生在1969年，一起創辦了「香港科聯顧問工程師行」。當科聯成立之初，主要客戶大多來自華資地產發展商，接下了萬邦行與新世界中心等多個大型項目，而後期亦陸續投得多項政府工程。

當事業發展至高峰，陳鑑生在1974年隨家人移民往澳洲悉尼。雖然離開了熟悉的環境，但他的全方位暖通空調及屋宇設備經驗，亦一樣為他在澳洲打開了漂亮的一頁。他先後擔任當地幾間國際性工程公司的要職，並常常穿梭於澳洲、中國、香港和其他亞洲國家。曾參與過不少大型項目，例如印尼耶加達文華酒店、北京文化中心、澳洲悉尼國際機場客運



大樓的空調系統改善工程及香港葵涌醫院安裝空調系統等等直至1993年，陳鑑生再從他的事業生涯裡轉換跑道，開始成為自僱式的機電顧問工程師。在擁有更高自由度的情況下，自然不乏更多跨國或本地公司向他招手，尋求合作機會。在1996至1998年期間，他更以顧問身份獲邀參與舊啟得機場發展規劃區域性供冷系統之可行性研究及初步設計方案，而這項研究亦即現時「啟德發展計劃」的初期藍本。

### 《處事作風》

多年來，無論與政府或私人公司的交手經驗當中，陳鑑生都有他個人的處事作風。在現今大家處處講求「以客為先」的服務精神的時候，他已早早洞悉這個關鍵，儘量滿足客戶的要求。但他也同時堅持不可以以「人云亦云」的心態，而放棄自己的專業建議；必須要兼顧實際需要，設計出完善的暖通空調系統，令客戶及用家都感到滿意。

### 《薪火相傳》

隨著暖通空調行業不斷發展，業內已研發了很多不同的理論、數據、以至軟件去協助工程師們設計暖通空調系統。但陳鑑生發現大部份對空調系統不滿的情況，都是由於空調系統中最重要之風系統設計及安裝調試不當所引起的。所以他就在2005年，綜合了自己40多年的寶貴經驗及所接觸的個案項目，整理成一份有關暖通空調風系統而設計的「金科玉律」。裡面詳細記載了在設計上不能遺漏的重點，工程師們最容易犯錯的關鍵小節，以及挑選設備要注意的地方等等。他希望這些資料能給予行內從業員，尤其是新一代，重新由最基本最原始的角度認識自己的專業知識。

### 《寄語新一代》

陳鑑生認為今日年青一代的工程師所接受的教育和培訓，已較以往更具組織及更為全面，這無疑可給予他們一個很好的事業起步點。但若成為行內精英，還要自己認真去研究基本原理，兼且要考慮及平衡客戶的要求和工程實際的需要，才能設計出最完善的暖通空調系統。再者，近年香港與內地人才無論在教育及工作水平都漸漸拉近。雖然香港工程師的實踐技巧較全面，卻稍欠深入的基礎知識；而內地的工程師則專注於個別科目，對其他有關科目的認知不夠全面。所以要加強自己的競爭優勢，香港工程師可考慮朝著內地不久前設置以適應21世紀及將來的「註冊公用設備工程師」的要求而努力，並且結合室內空氣質素及可持續發展能源等這些專門項目，方可突圍而出。



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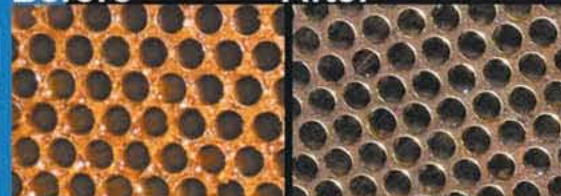
Before

After



Before

After



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## Thermal Energy Storage System Phase Change Materials

Thermal Energy Storage (TES) is the temporary storage of high or low temperature energy for later use. It bridges the time gap between energy requirement and energy use. Most TES applications involve a 24 hour storage cycle. While the output of the TES is always thermal energy, the input energy may be thermal or electrical.

A substance can exist in the solid, liquid or gaseous states depending on the temperature and pressure of the storage conditions. The latent change between two phases of certain substances can be used to store heating or cooling for later use. The substances used for latent heat storage are called "Phase Change Materials (PCMs)" which provide the advantages of smaller size, constant temperature during phase change, lower stand-by losses over sensible energy storage materials. The most commonly used form of Phase Change is the heat of fusion between solid and liquid phases; e.g. the water/ice phase changes at  $0^{\circ}\text{C}$ . In the late 1970's an USA company has developed the first  $+8.0^{\circ}\text{C}$  PCM (Eutectic Salt) for the application of chilled water TESS system. With the well above  $0^{\circ}\text{C}$  as freezing/melting point of the PCM then chilled water with say around  $6.0^{\circ}\text{C}$  may be used for charging the PCM, which would be more economical and practical than using Glycol solution as the charging/discharging media for conventional ice storage systems. This is one of the major advantages of nowadays PCM/TES system.

TES technology now has a choice to use a mixture of two or more chemicals which, when mixed in a particular ratio, will have different freezing/melting point. This group of mixture of PCMs can then provide different freezing and melting points for designer to apply.

At night the chillers produce conventional  $5\sim 7^{\circ}\text{C}$  chilled water which passes through the TES Storage, while the building Load is being bypassed, in order to charge the system. The cooling effect from the chilled water circuit is absorbed by the phase change material thereby freezing the PCM at its phase change point (Figure 1).

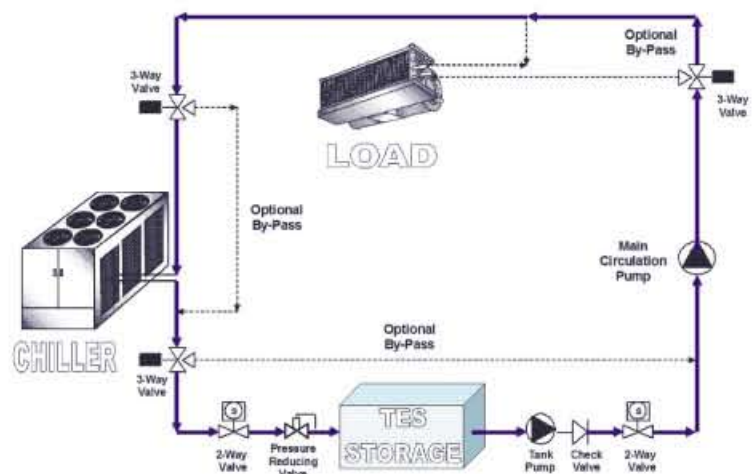


Fig. 1, Charging Mode

During the day, warm  $10\sim 15^{\circ}\text{C}$  returned water from the building, after having picked up heat from building Load, flows through the TES Storage to recover the stored latent heat capacity of the phase change materials without the chiller is being turned on (until TES runs out of its capacity to meeting building Load, then the chiller would be turned on ahead of time). This is the Discharging Mode which is shown on Figure 2.

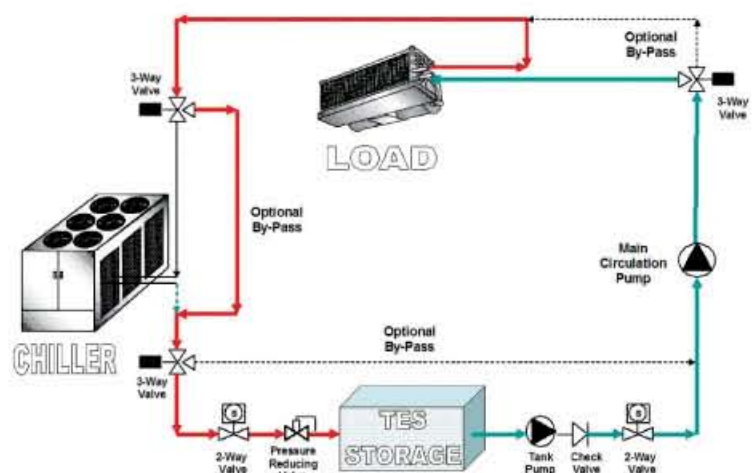
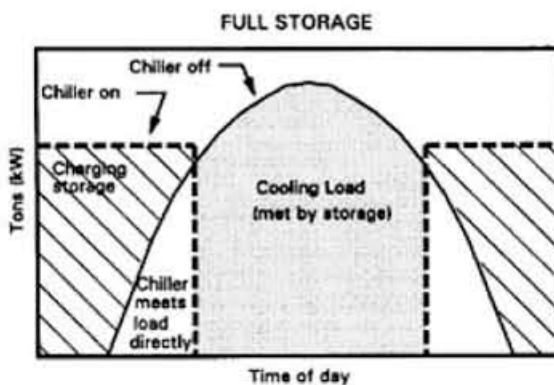


Fig. 2 Discharging Mode

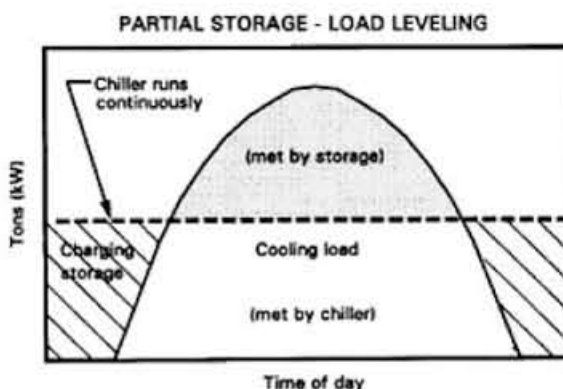
There are three main design modes for TES which are the **"FULL"**, **"PARTIAL STORAGE"** and **"DEMAND LIMITING"**



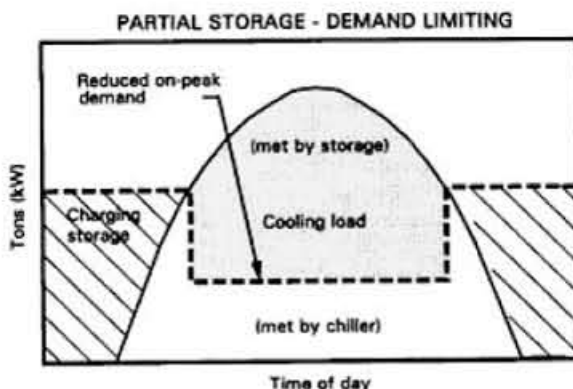
**FULL STORAGE** systems shift the total cooling/heating load to the off-peak period



**PARTIAL STORAGE** system utilizes the cooling/heating source during the peak periods in order to reduce the initial storage capacity.



**DEMAND LIMITING** which is a type of Partial Storage system whereby the excess capacity is supplemented by a TES source in order to stay below the maximum electrical demand limit.



In principle, FULL STORAGE provides the most economical running cost with a penalty of larger initial investment cost and volume (space) requirement while that of PARTIAL STORAGE or DEMAND LIMITING cost is relatively cheaper in comparison with full storage but the running cost could be higher. Both of the above design modes can be applied for either an existing system or new installation.

**Operating and Cost Benefits may be summarized as:**

- (1) **Less Electrical Charge:**  
Savings would result from the difference between On-Peak & Off-Peak rates as well as the Demand Charges.
- (2) **Allow for low ambient operation:**  
Heat rejection equipment operates more efficiently at night time with lower ambient temperature and hence save more energy.
- (3) **Smaller Chiller / Running at full load:**  
Chillers can be designed 30-60% smaller than the conventional system due to the additional large latent heat storage capacity by TES to satisfy the maximum load demand by the building.
- (4) **Future / Expansion additional capacity:**  
Any future or additional cooling/heating demand can be easily satisfied by means of changing the thermal storage strategy for the system. In principle, the additional capacity can be provided by shifting from a partial storage to a full storage depending on the required additional capacity over the existing capacity limits.
- (5) **Stand-by Capacity:**  
The stored thermal energy can easily provide reasonable safety periods for any regular and/or emergency repair works to be carried out without disturbing the system. Full Stand-by capacity will become more essential for industrial and critical facility applications.

The wide range of PCM technology enables the designer to utilize as much free cooling energy storage operations as possible. This technique can be applied not only for the chilled water circuit but also for the heat rejection side of the system. The selected temperature range of PCM allows centrifugal and absorption chillers as well as the conventional reciprocating and screw chiller systems to be used for charging the system which makes PCM one of the options for improving the energy efficiency of the chilled water plant for the HVAC industry. ◉

*(Acknowledgement - Some data and information was extracted from documentation provided by Boca Int'l Ltd.)*





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工廠地址：廣東省東莞市石排鎮橫山管理區石排大道橫山路段

聯絡人：李蓮蓮

公司電話：(852) 2356 8598

公司傳真：(852) 3118 6363

電郵：[info@evercoolhk.com](mailto:info@evercoolhk.com)

網址：[www.evercoolhk.com](http://www.evercoolhk.com)

主要業務：生產及銷售"TECH FREE"精密空調設備及 IAQ  
室內空氣質量產品

公司簡介：本公司自設廠房專業設計和生產"TECH FREE"  
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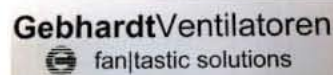
TECHFREE 組合式空氣處理機組



TECHFREE 高精度恆溫恆濕空氣處理機



TECHFREE 多功能組合式空氣處理機組







# 聯明坪山冷氣製品有限公司

LUEN MING PENGSHAN AIR CONDITIONING FACTORY LIMITED



## PROFILE 簡介

Established in 1993, Luen Ming Pengshan Air Conditioning Factory Limited is a large company with whole investment capital from Hong Kong, manufacturing high quality products for air conditioning systems. Luen Ming has set up a modernized factory in Longgang district of Shenzhen city with an area of over 10,000 sq. meters, a team of 450 staff members and daily production capacity of 2,000 sq. meters of steel sheets. Under good management and with a team of experienced staff, Luen Ming has established well-known brand within a short period of time and supplied high quality products that are widely applied in major projects of government facilities, railways, hospitals, casinos, commercial buildings and factories etc. in recent years.

聯明坪山冷氣製品廠有限公司始創於1993年，是一家集高品質冷氣產品製造商，為全資香港公司。聯明於深圳龍崗區開設一所先進現代化廠房：面積10,000多平方米，現職員工約450人，日產能約2000平方米鐵片及冷氣配件製品，並擁有一支有系統管理及技術精良的團隊，在多年的錘煉中，使聯明產品迅速步入品牌航道，廣泛應用於政府大型工程、地鐵、醫院、娛樂場所、商業中心、工廠等。



## Quality Management System 聯明的品質管制體系



- In 2000, Luen Ming was set up the ISO9001 Quality Management System .  
2000年，聯明建立起ISO9001品質管制體系。
- In 2001, Luen Ming was finalized our operation mode of survey, production, promotion.  
2001年，聯明集研發、生產、推廣為一體的營商模式已趨完善。
- In 2004, Luen Ming was complied with ISO9001:2000 Quality Management System.  
2004年，順利通過認證，正式成為ISO9001：2000 版認證企業。
- In 2009, Luen Ming was complied with ISO9001:2008 Quality Management System.  
2009年，順利通過認證，正式成為ISO9001：2008 版認證企業。
- In 2009, Flange system, F.D., VCD, NRD & A.P. was complied with HVCA DW 144.  
2009年，佛蘭系統、防火閘、調節閘、止回閘及修理門根據DW144測試合格。

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Website: www.luenming.com

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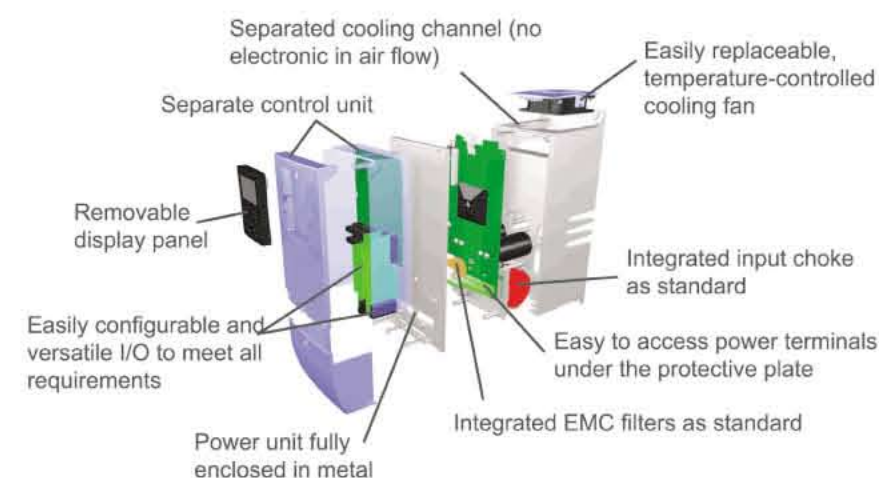
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## International Commerce Centre (ICC)



International Commerce Centre consists of two main sections – total 5 zones of premium-quality office floors and the topmost 6-star Ritz Carlton Hong Kong Hotel. When completed in 2010, the 490-metre high and 118-storey International Commerce Centre will be the Hong Kong's tallest and the World's third-tallest building in terms of usable floors. The topmost Ritz Carlton Hotel will also be the tallest Hotel in Asia. The building also link up with one of the largest shopping mall in West Kowloon "Element" and the podium level of the Union Square Development of the MTR Kowloon Station by its own specially featured "Dragon Tail". In middle of 2009, 2 main phases of the building have been completed for the Office Portion up to 77/F.

Air-conditioning of the Office Portion and Hotel Portion of ICC are provided by two separate systems. 6 nos. 11kV 2000RT high-efficiency fresh water-cooled centrifugal chillers serve for the main chilled water supply to the whole office zones up to 99/F and Hotel Entrance Lobby and Function Rooms at podium levels.

11 nos. induced draught cross flow type cooling towers constitute the largest indoor cooling tower plant in Hong Kong. Some cooling towers are also equipped with plume abatement coils circulated with hot water supplied by 2 nos. heat pumps. Air-cooled chillers provided by the landlord and the major tenants are connected to the chilled water system and serve as standby chillers backup by generator power supply. To reduce operating pressure of the chilled water system there are three hydraulic breaks in the chilled water supply risers in the form of plate type heat exchangers located on M1, M2 and M3 plant rooms.

VAV system is adopted for office floors together with intelligent temperature and pressure control of the connected VAV air handling units. For energy efficient and IAQ issue, carbon dioxide sensors are used to control the amount of primary air entering the VAV AHUs and maintain the CO<sub>2</sub> level below 800ppm inside the office space.

For Hotel Portion, 3 nos. 750RT and 2 nos. 380RT 380V fresh water-cooled centrifugal chillers serve for the chilled water supply to the Observation Deck, Restaurants, Guest Rooms and other Hotel areas starting from 100/F. 4 nos. outdoor induced counter flow type cooling towers located at the main roof provide condensing water for the hotel chillers.

In meeting such skyscraper's fire safety requirements, smoke extraction systems are provided for basement floors, dragon tail and hotel guest room floors. Some staircases and fire-fighting lift lobbies of the whole building are also protected by mechanical pressurization systems. Due to physical constraints of this super high-rise building, multiplexer smoke control systems are adopted for all smoke extraction systems, pressurization systems and VAC control systems in order to reduce hard wires quantity and complexity. ◦



### Project Summary

Project Site	West Kowloon
Client	Harbour Vantage Ltd. (c/o Sun Hung Kai Properties Ltd.)
Architect	Wong & Ouyang (HK) Ltd. E&M
Consultant	J. Roger Preston Ltd.
Main Contractor	Sanfield Building Contractors Ltd.
HVAC Contractor	Takasago Thermal Engineering (Hong Kong) Co., Ltd.
Total Cooling Capacity	Office Portion: 12,000 Tons Hotel Portion: 3,010 Tons
Completion Date	2010





# 福隆(香港)有限公司 Fook Loong (HK) Ltd.

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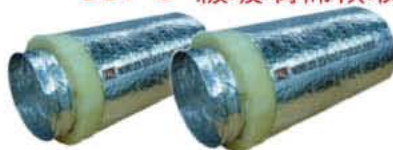
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# Better City Better Life

## Shanghai 2010 World Expo



The theme of Expo 2010 is **"Better City, Better Life"**, representing the common wish of the whole humankind for a better living in future urban environments. This theme represents a central concern of the international community for future policy making, urban strategies and sustainable development. The quest for a better life has run through the urban history of mankind. Through different sub-themes, Expo 2010 will create blueprints for future cities and harmonious urban life styles, providing an extraordinary educational and entertaining platform for visitors of all nations.



Expo 2010 Shanghai China will center on innovation and interaction. It will also be a grand international gather and endeavour to attract about 200 nations and international organizations to take part in the exhibition as well as 700 million visitors from home and abroad.

As sustainable development is one of the key concerns in this event, lots of innovation HVAC solutions, including river source heat pump system, ice storage technology, high efficient variable frequency centrifugal chillers and high efficiency air-cooled screw heat pumps, can be found in Expo Site. They address demands for energy efficient and cost effective operations in Expo venues.

### Expo Boulevard 世博轴

As the largest stand-alone structure of the Expo site, the Expo Boulevard is a semi-open structure that will serve as a large transportation and multi-purpose commercial center. At Expo Boulevard, technology of river source heat pump is applied to fully leverage the riverside location of Huangpu River and accomplish effective operations and energy efficient performance. In overall, it will achieve 26% energy savings annually by applying river source heat pump air conditioning system. This equates to approximately 89,300 tons of water and 288,000 kWh of electricity saved during the World Expo, which is also equals to a reduction of 288 tons of carbon dioxide released to the air.

### World Expo Center 世博中心

When completed, this 140,000-square-meter center will serve as the main area for ceremonies, conferences, and various forums during Expo Shanghai. The high efficiency screw chillers used in this project are equipped with ice storage technology. Utilizing electricity to produce ice at night which then cools the building during the day. The efficient system will significantly reduce the electricity usage during peak hours when demand and costs are highest.

In fact, World Expo Center has achieved LEED® Gold certification from the U.S. Green Building Council with numerous green strategies and technologies that have been identified and evaluated for this project.

### Theme Pavilions 主题馆

Located in Zone B of the enclosed area of the Expo site and to the west of Expo Boulevard, the Theme Pavilions will be built into a "green, energy saving, environmentally-responsible" building with an above-ground area of 80,000 square meters and under-ground area of 40,000 square meters. It is equipped with variable frequency centrifugal chillers and air-cooled high efficiency screw heat pumps, to optimize operation through high part-load efficiency. ●







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## IHEEM (HK Branch) & ACRA Joint Technical Visit – Beijing and Tianjin

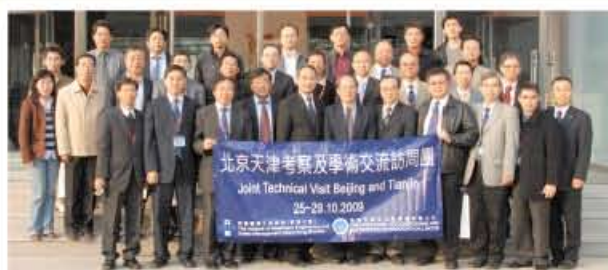
香港空調及冷凍商會每年都安排考察及技術交流訪問活動。今年挑選了剛舉辦完奧運會的北京和天津作交流對象，並聯同英國醫療工程學會（香港分會）合辦為期五天的北京天津考察及學術交流訪問團，反應非常熱烈，一共有十九人參加。香港空調及冷凍商會非常重視是次的訪問，有多位高層參予，包括會長莊國明先生、主席葉啟賢先生、兩位副會長余達志先生及陳志雄先生、理事梁栢泉先生和前會長陳家龍先生等等，陣容鼎盛。二零零九年十月二十五日下午，眾人齊集於香港國際機場，一起出發到北京。

第二天早上，一行人參觀了北京大學體育館的暖通空調設施。午餐時，大家一起品嚐了著名的北京烤鴨。

下午即馬不停蹄地去參觀北京地壇醫院（又稱解放軍總醫院）的暖通空調及醫療設備。許多國家幹部及人大常委的健康出現問題時，都是入住這所醫院作診治。參觀過後，大家對國內在醫院暖通空調設計上的實際情況，都加深了認識。



雖然時間緊迫，途經著名的奧運場地「水立方」和「鳥巢」時，大家都抽空停下來拍照留念。接著到北京凱賓斯基飯店參觀。從她們的暖通空調設備中——由初期採用高效能的R123水冷式冷水機組，到中期使用熱回收水冷式冷水機組，直至到近期使用蓄冰系統來減低高峰期間對電容量的需要，並在運作上配合冷水機組的監控系統——看到現在國內對能源效益的不斷改進及提昇。



當天參觀完畢後，團隊馬上出發到天津。經過兩小時車程後，遠遠看到天津最新地標建築「天津之眼」摩天輪，就知道已到達了中國四大直轄市之一「天津」。





即第三天早上，天津市淨化技術工程協會和天津暖通空調專業委員會安排團隊在天津龍川精工潔淨技術發展有限公司的會議室內作學術交流。開始時，大家都各自介紹了其代表的學會及兩地在醫療上的一些基本情況。及後天津大學凌繼紅副教授和涂光備教授也先後跟我們分享了在「生物安全實驗室」和「國內外手術室的潔淨標準」上的研究。下午參觀了龍川精工公司的潔淨技術發展和產品生產過程後，天津大學邢金城副教授和涂光備教授再先後跟我們分享了在「手術室空調系統的節能」和「潔淨手術室的檢測」上的研究。當天的活動，在一片熱烈的掌聲中結束。



第四天早上，到達天津市泰達國際心血管病醫院（民營）和泰達醫院繼續參觀行程。建築師在建築設計時，把醫院運作流程和需要也一併考慮在內，大大把日常運作效率提昇和減少營運成本。



下午轉到天津生物化學製藥有限公司和天津疾病控制中心參觀。晚飯前，大家還抽空坐遊船參觀天津市著名「海河」的兩岸夜景。



第五天早上，利用一些空閒時間安排了天津市市內觀光的行程。大家對天津市這數年的經濟發展及變化，都留下了深刻印象。其後乘搭北京至天津的快速鐵路離開天津返回北京。午飯後，大家一起坐車到北京國際機場，乘搭黃昏航班返港。



在這五天的旅程裡，除了加深了參加者對國內醫院暖通空調系統的認識外，亦提供了一個良好的聯誼機會予兩會會員。希望兩個學會和商會在未來的日子，可以加強合作和交流，使我們的行業可以更上一層樓。



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## Basketball Tournament 2009



There were a total of 12 teams for the tournament.

The results were as follows:

Champion: Jardine Engineering Corporation

1<sup>st</sup> runner up: Raising Engineering Ltd.

2<sup>nd</sup> runner up: Trane Hong Kong



## Technical Visit to Guangzhou No.1 Pump Works and Stars (Guangzhou) Refrigerating Equipment Manufacturing Co., Ltd.

The Chartered Institute of Plumbing and Heating Engineering – Hong Kong Branch (CIPHE) & The Hong Kong Air Conditioning and Refrigeration Association Limited (ACRA) held a joint technical visit to Guangzhou "Guangzhou No.1 Pump Works" and "Stars (Guangzhou) Refrigerating Equipment Manufacturing Co., Ltd." on 1 July 2009. There were 37 delegates including 30 from CIPHE and 7 from ACRA. All participants commented that it was a successful and educational visit.



## Insulation Installation Course

ACRA provides diversified training/learning programs for our members. The Insulation Installation Course has been launched for over 10 years by now and we are honored to co-organize this course with the Hong Kong Institute of Vocational Education (HKIVE) starting this year. The course includes



the theory lesson and technical workshop. The theory lesson was held on 10th July at Morrison Hill VTC Tower and the Full-day Technical Workshop was held on 11th & 25th July at PokFuLam IVE. The technical workshop aims to provide a comprehensive aspect to the candidates on using the insulation material through hands-on experience.



## BBQ & Driving Range Activity

The BBQ function was held on 25 April 09 at Whitehead Club. Although there was a bit of rain on that day, we had more than 30 members joining the function. We enjoyed not only the delicious BBQ pack provided by the host but also having a small golf competition. Our President Mr. Daniel Chong had also taught us some of the basic skills of playing golf and we had learnt a lot from him.





## 2009 ACRC Bowling Competition

There were a total of 16 teams for the tournament and the final round was held on 21<sup>st</sup> of May at AMF Amoy Super Bowl.

The over all results were as follows:

Champion: Newland Co.

1<sup>st</sup> runner up: Young's Engineering Co. Ltd. (Team A)

2<sup>nd</sup> runner up: Young's Engineering Co. Ltd. (Team B)



## Horse Racing Night

"Horse racing night" was held on 6 May 2009 at Happy Valley, Hong Kong. Participants enjoyed the buffet dinner that evening. A mini game of contest was held amongst the ACRA participants where the winner would be awarded a cash coupon. Mr. Daniel Wong of Southa Co. Limited was the winner of the game while the runner-up was Mr. Ken Chan of Chun Lee Engineering Co. Limited. Some members won on the horse race while others were not as lucky. Anyway, all had fun and enjoyed the function very much.



## Boat Trip

The boat trip function was held on 12 Sep 09 at South Bay. It was a fine day with plenty of sunshine and around 25 members joined the trip. After enjoying a delicious buffet lunch, we started our sports such as wakeboard, banana boat, swimming and etc. There was a lot of fun and joy throughout the entire event. All participants had a great time at this fun-filled outing.







恩索環保科技有限公司  
Eaxon Environmental Technology Co., Ltd.  
Shanghai • Hong Kong • Beijing • Guangzhou



## The Evolution of MEGAcel PTFE Media



### Why ePTFE Membrane ULPA Filters?

#### High Collection Efficiency

- 99.999955% @MPPS
- U16 to EN 1822
- Meets i300i specification
- Scan test with PSL

#### Low Pressure Drop

- Up to 30% lower
- Reduces energy cost
- Reduces construction depths

#### Low Off Gassing

- Extreme low impurities
- No Boron
- Low Dopant Content

#### High Durability

Reduces transport and installation damage

#### High Acid Resistance

Hydrofluoric Acid resistance

#### Perfect Filter Media

Compared with micro-fiberglass media, the MEGAcel's PTFE media provides superior benefits including inert chemical properties, more uniform fiber distribution, smaller fiber diameters and pore size, which reduces resistance with higher filtration performance to achieve substantial energy savings.

PTFE membrane media



Figure A (1,000x)

ULPA micro-fiberglass media



Figure B (1,000x)

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Website: [www.eaxon-group.com](http://www.eaxon-group.com)

E-mail: [info@eaxon-group.com](mailto:info@eaxon-group.com)



## Floor Mounted Vibration Isolators



**Model FLS**  
Restrained Type



**Model FDS**  
Free Standing

**Problem Solvers**  
in Vibration Isolation,  
Noise and Shock Control

*Members of ASHRAE, AMCA, VISCMA  
ASME, CSME and ACRA*

**50<sup>th</sup>**  
**Anniversary**  
*Est. 1958 USA*

## Suspended Vibration Isolators



**'SPRH' Isolation Hanger**  
with Safety Control Device



**Model SHAA**  
Isolation Hanger

## Duct Laggings



**Model KNM-100ALQ**

## Barrier Materials



**Model KBC**



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Unit E, 9/F., World Tech Centre, 95 How Ming Street, Kwun Tong, Hong Kong  
Tel: (852) 2191 2488 Fax: (852) 2191 2477 Email: [hksales@kineticsnoise.com](mailto:hksales@kineticsnoise.com)

the missing link



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# MEMBER LIST



## COMPANY NAME

## CONTACT NO.

## TRADE

ATAL Engineering Ltd.	安樂工程有限公司	2565 3339
Carrier Hong Kong Ltd.	奧利(香港)有限公司	2694 5618
Krueger Engineering (Asia) Ltd.	高麗機電工程有限公司	2860 7333
Newland Engineering Ltd.	新隆工程有限公司	2967 8620
REC Engineering Co., Ltd.	盈電工程有限公司	2619 8082
Shinyo (Hong Kong) Ltd.	新菱工程香港有限公司	2237 8624
Shun Hing Engineering Contracting Co., Ltd.	信興機電工程有限公司	2419 8282
The Jardine Engineering Corporation Ltd.	怡和機務有限公司	2807 4511
Trane Hong Kong	特靈香港	3128 4764
Winston Air Conditioning & Engineering (HK) Co., Ltd.	永通冷氣工程(香港)有限公司	2764 1200
York International (Northern Asia) Ltd.	約克國際(北亞)有限公司	2331 9286
Young's Engineering Co., Ltd.	景福工程有限公司	2235 0900

E&M Contracting	ACRA Fellow Members
Air-Conditioning Equipment Supplier	
Air-Conditioning, Electrical, Fire Services, Plumbing & Drainage Installation	
Registered Contractor in ACMV & Electrical Installation	
E&M Contracting	
Building Services, E&M Contractor	
Contracting	
Contracting / Supplier / Building Automation / Energy Service	
Air-Conditioning Equipment Supplier	
Contracting	
Manufacture of Air-Conditioning Equipment	
Design, Supply & Installation of Electrical & Mechanical Services, Routine Maintenance Work	

Alliance Contracting Co., Ltd.	聯和承造有限公司	2891 9083
Analogue Technical Agencies Ltd.	安樂科技有限公司	2561 8278
Chevalier (HK) Ltd. - A/C Division	其士(香港)有限公司-冷氣部	2111 4811
China Overseas Mechanical & Electrical Engineering Ltd.	中國海外機電工程有限公司	2823 7888
Chun Wo E & M Engineering Ltd.	俊和機電工程有限公司	3758 8007
Dalkin Airconditioning (Hong Kong) Ltd.	大金冷氣(香港)有限公司	2570 2786
Eftatir Engineering Co., Ltd.	怡輝冷凍工程有限公司	2606 6922
Honeywell Ltd.	霍尼韋爾(香港)有限公司	2331 9133
Hong Kong Thermo Industries Ltd.	香港冷凍器材有限公司	2674 6876
Hsin Chong Aster Building Services Ltd.	新昌亞仕達屋宇設備有限公司	2579 8238
Johnson Controls Hong Kong Ltd.	江森自控香港有限公司	2590 0012
Kervin Engineering Co., Ltd.	榮信工程有限公司	2422 3110
K-Thom Engineering Co., Ltd.	旗鋒工程有限公司	2481 2918
Lucky Engineering Co., Ltd.	達通冷氣電業有限公司	2780 5285
McQuay Air-Conditioning Ltd.	麥克維爾空調有限公司	2893 6261
Meco Engineering Ltd.	德寶工程有限公司	2891 8722
Quad-Tech Engineering (HK) Co., Ltd.	高得工程有限公司	2573 1832
Ryowio (Holding) Ltd.	菱和(集團)有限公司	2319 8381
Siemens Ltd.	西門子有限公司	2856 3813
Skyforce Engineering Ltd.	天科工程有限公司	2885 1620
Southa Co., Ltd.	南龍有限公司	2963 7175
Standard Refrigeration & Engineering Co., Ltd.	立德工程有限公司	2781 0871
Takasago Thermal Engineering (HK) Co., Ltd.	高砂熱學工業(香港)有限公司	2520 2403
Technicon Engineering Ltd.	得力華工程有限公司	3193 1300
Welcome Oncho Denki Ltd.	偉基溫潤電機有限公司	2806 8316
Westco Air Conditioning Ltd.	威高冷氣工程有限公司	2426 3123

Contracting	ACRA Corporate Members
Air-Conditioning Equipment Supplier 'Hitachi', 'Evapco', etc.	
Contracting	
Contracting	
Contracting	
Air-Conditioning Equipment Supplier	
Supplier and Contracting	
Building Automation Contracting	
Supplier and Contracting	
E&M Contracting	
Supply, Install & Maintenance of HVAC, Fire Services, E&M, Security & Extra Low Voltage System	
HVAC Contracting E & M Engineering	
Air-Conditioning & Electrical Installation	
E&M Contractor	
Split type A/C, Chilled Water Fan Coil Unit, Water Cooled Package & Split Type Water Source, Heat Pump Chiller Supplier	
Engineering Contractor	
Contracting	
Manufacturer for Water Cooling Towers, Water Tanks & Pumps, etc.	
Building Automation AFA, Security, CCTV & ELV System	
Building Services Installation	
Supplier of A/C Equipment	
Design, Supply, Installation and Maintenance of HVAC System	
Contracting	
Building Services Design, Installation and Maintenance	
Supplier of HVAC Equipment	
Contracting	

A & R Engineering Co., Ltd.	奇樂工程有限公司	2408 2960
Air Master International Ltd.	雅士(國際)空調有限公司	2764 0307
Air Trade Centre Ltd.	裕風先達有限公司	2887 7000
Alison M & E Engineering Ltd.	雅訊機電工程有限公司	2595 1199
Alpha Appliances Ltd.	第一電業有限公司	2529 7555
Alstern Technologies (HK) Ltd.	奧思(香港)有限公司	2647 8163
Anway Engineering Co., Ltd.	正佳工程有限公司	2598 4228
Armaceil Asia Ltd.	阿樂斯亞洲有限公司	2574 8376
Arnhold & Co., Ltd.	安利有限公司	2807 9400
Brightwell Air-Conditioning Ltd.	冠昇空調有限公司	2331 8559
Brisky Limited	穿梭科技有限公司	2511 3161
Bun Kee (International) Ltd.	杉記(國際)有限公司	2748 9319
C.J. Wishing International Ltd.	惠生電業有限公司	2799 9797
Chung Hing Electric Co., Ltd.	中興電業有限公司	2365 0288
Clydean Engineering Ltd.	佳電工程有限公司	2332 3591
Crowtin Limited	冠順有限公司	8202 0830
Dah Chong Hong (Engineering) Ltd.	大昌貿易行工程有限公司	2768 3595
Delta Pyramax Co., Ltd.	佳澤科技有限公司	2511 2118
Dynamic Success Co., Ltd.	勁技有限公司	2116 9021
Eaxon International Co., Ltd.	恩索有限公司	3590 4656
Enviro-Tech Engineering Co., Ltd.	廣達工程有限公司	2827 0688
Euro Airconditioning Ltd.	歐諾空調有限公司	2323 0809
Ever Cool Refrigerating & Air-Conditioning Co. Ltd.	嘉經冷凍空調設備有限公司	2356 8598
Extensive Trading Co., Ltd.	精基貿易有限公司	2889 1681
Fook Loong (HK) Ltd.	福隆(香港)有限公司	2393 7773
Fungs E & M Engineering Co., Ltd.	馮氏機電工程有限公司	2682 7200
GTECH Services (Hong Kong) Ltd.	英國通用工程(香港)有限公司	2123 0888
GELEC (HK) Ltd.	香港通用電器有限公司	2919 8383
Gether-Force Air-Conditioning Engineering Co., Ltd.	群力冷氣工程有限公司	2890 2622
Getwick Engineers Limited.	佳域工程有限公司	2893 3600
Goodways International Ltd.	協進國際有限公司	2575 8770
Gotop Engineering (HK) Ltd.	高隆工程(香港)有限公司	2459 3038
Hensen System Engineering Ltd.	豪信系統工程有限公司	2884 9001
Honest Air Conditioning Ltd.	明發冷氣有限公司	2396 8108
H.W. International Air-Conditioning Ltd.	豪華國際空調有限公司	2796 8888
IES (Hong Kong) Limited	恒豐工程(香港)有限公司	2992 0830
IMS International Limited	偉程國際有限公司	2881 8011
Kembla (HK) Limited	金特霸(香港)有限公司	2528 0999
Kin Wo A/C Engineering Ltd.	健和冷氣工程有限公司	2398 0157
Kinden Corporation		2368 6136
Kinetics Noise Control (Asia) Ltd.	建力聲廣控制(亞洲)有限公司	2191 2488
Kings View Airconditioning Engineering Co. Ltd.	景匯空調工程修有限公司	2796 2417
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Link The Best Company Ltd.	必發(香港)有限公司	2568 4092
Man Po Environment Technologies Co., Ltd.	文寶環保科技有限公司	2429 0088
Mega Power Engineering Co., Ltd.	雄力工程有限公司	2474 9832
Mesan Fiberglass Engineering (Int'l) Ltd.	明新玻璃纖維工程(國際)有限公司	2787 5717
Midea Electric (HK) Ltd.	美的電器(香港)有限公司	3669 4888
NAP Acoustics (Far East) Ltd.	NAP 聲學工程(遠東)有限公司	2866 2886
Oxprime (International) Ltd.	鑫輝(國際)有限公司	2590 8088
Peterson Engineering Ltd.	必德信工程有限公司	2365 0372
Practical Engineering (HK) Co., Ltd.	百利高工程(香港)有限公司	2402 2772
Raising Engineering Ltd.	威信工程有限公司	2395 6081
Richmax Air Conditioning Co., Ltd.	萬聯空調有限公司	2698 3423
Sanby Trading Co., Ltd.	聖恆貿易有限公司	2573 4219
Savills Engineering Ltd.	第一太平戴維斯設備工程有限公司	2534 1688
Shun Hing Ref. A/C Engineering Ltd.	順興雪櫃冷氣工程有限公司	2387 2882
Sing Kin Ltd.	堅建有限公司	2333 1518
Stars (H.K.) A/C & R Co., Ltd.	恒星(香港)冷熱設備有限公司	6116 7832
Southa Engineering Limited	南龍工程有限公司	2963 7241
Super Mark (H.K.) Engineering Co., Ltd.	高達(香港)工程有限公司	2595 1122
Teambase Development Ltd.	天基發展有限公司	2554 6263
Thermtech Building Products	泛達建築材料有限公司	2756 3837
Tom's Equipment Co., Ltd.	義隆設備有限公司	2757 5539
Union Manor Ltd.	聯明有限公司	2797 2168
Viewco Building Services & Eng. Co., Ltd.	偉保工程有限公司	2543 0610
Vital Engineering Co., Ltd.	威爾工程有限公司	2571 5382
Wai Luen Air Conditioning Ltd.	偉聯空調設備有限公司	2890 9321
Wolter Asia Ltd.	華德亞洲有限公司	2456 0198
Wydermann Co., Ltd.	威士文有限公司	2614 2213
Yordland Engineering Ltd.	日島工程有限公司	2362 2186

Contracting	ACRA Associate Members
Manufacturing of Air-Conditioning Equipment & Component	
Contracting & Supplier of Air Conditioning Product	
Contractor	
Authorized Distributor of 'General' Air-Conditioner	
Contracting	
Supplier	
'Armaflex' Insulation Manufacturer	
To Market and Distribute A/C and Engineering Equipment for Building Construction Industry of HK & China Market	
Supplier of HVAC Equipment	
Supply & Install Window / Split Type & Packaged VRV Systems	
Wholesale	
Supplier of Air-Conditioning Products - Daikin-Japan-Kimukoh-Japan, Inaba-Japan, Taco-USA, etc	
Supply of Electrical Products of brand 'MK', 'LEGRAND' & 'HAGER'; Cable of brand 'DRAKA', 'PIRELLA' & 'AEI'	
E & M Contracting	
Contracting / Supplier / Building Automation	
HVAC Installation, E & M Packaged Installation	
Supplier	
Supplier of Water Treatment	
Supply of HVAC	
Supplier	
Supplier (Authorized Dealer of AC Products - Daikin, Toyo, Valmatic, Honeywell-MNG)	
Supplier, Manufacturing	
Supply of Mechanical Equipment, Building Materials, Environmental Products	
HVAC/R Supply of 'Phenotherm' Phenolic Foam, 'P-flex', 'Winflex 33I', 'PAL' Accessories, CR Pump & BANFF Valves	
E & M Contracting	
Contracting	
Supplier	
Contracting	
Contracting	
Manufacturer's Representative	
Electrical & Mechanical / MVAC Engineering	
Building Automation	
Contracting & Supplier	
Manufacturer of Air-Conditioning Equipment	
Supply & Install Central Hot Water Plant and Seawater Plant, Supply of Equipment	
Manufacturer of 'IMASU' Ventilation Product	
Supplier	
Contracting	
Building Services - E & M Works	
Supply of Acoustic Materials, Vibration Isolators, Floating Floor & Barrier Materials	
HVAC Contracting & Maintenance	
Registered Ventilation Contractor	
Supply Pre-insulated Pipe Air Filter, Butterfly Valve, Electrostatic Precipitator, UV Sterilizer & Other Building Material	
Supplier	
Contracting, Supplier of A/C Equipment	
Manufacturer of 'MESAN' water cooling tower; Distributor of Air-Conditioning Equipment	
Supplier & Manufacturer of 'MD' Product	
Design, Supply, Installation of Acoustic Treatment and Vibration Control Products	
Pump, Cooling Tower, VAV Box, Vibration Isolators, Dura Duct, Liquid-Solids Separation Systems, Fibreglass Supplier	
Contracting	
Contracting & Supplier	
Authorized Distributor of Toshiba & Carrier Product Registered Contractor	
Distributor of HVAC Product	
Specializing in Trading Construction Insulation Material such as Phenolic Foam, Fibreglass	
Contracting & Energy Service	
Design, Supply & Installation of Air-Conditioning	
Contracting	
Manufacturing	
Air-Conditioning & Refrigeration Installation	
Supplier / Distributor for Electrostatic Precipitator	
Supplier / Distributor for Electrostatic Precipitator, MVAC System & Electrical Installation	
Contracting / Supplier for Weatherproof / Fire Resistant Materials to E & M Services	
Insulation Material Supplier	
Contracting	
Contracting	
Contracting	
Supply & Manufacturing of Full Range of Ventilation Fans	
Supply & Manufacturing Air Conditioning Accessories	
Design, Supply & Installation and Maintenance of HVAC, Electrical and Fire Services System	