



ACRA NEWSLETTER

Winter 2024



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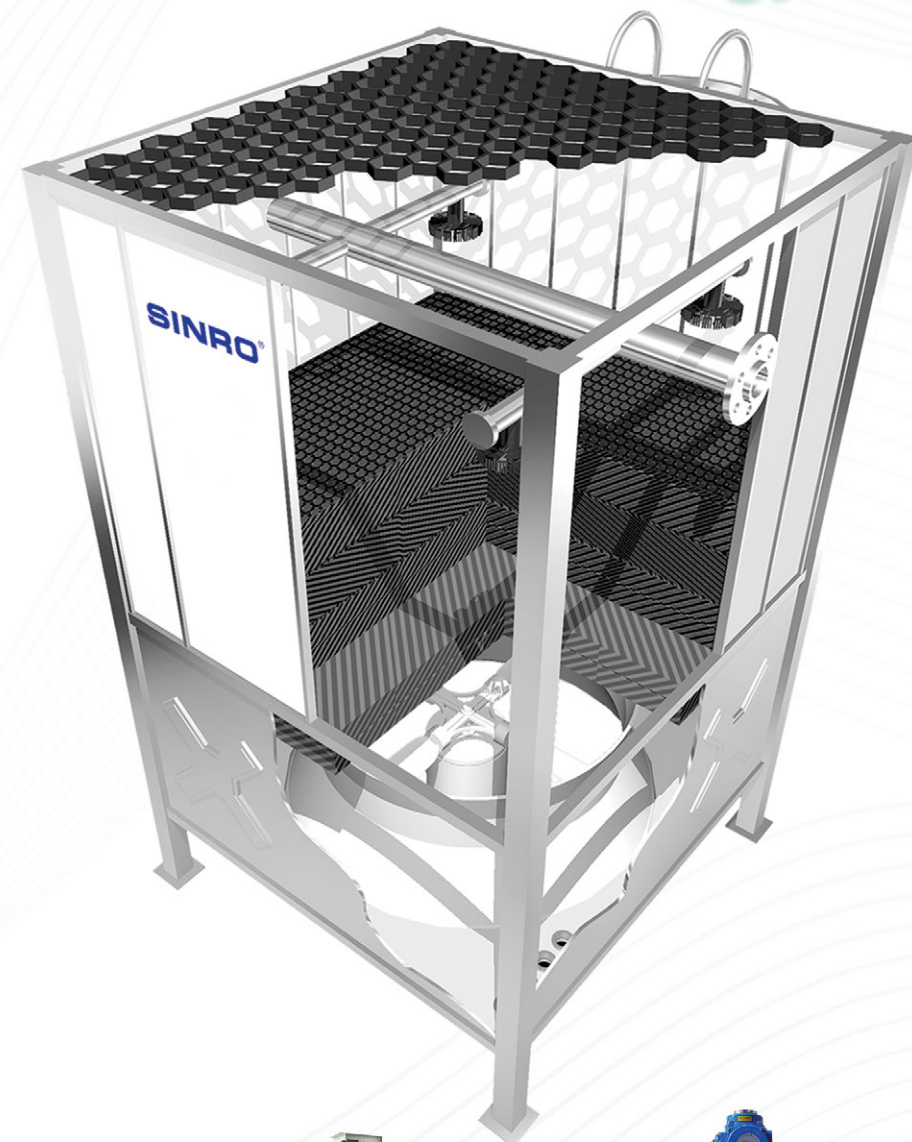


Riding the Winds of Change
A New Horizon for HVAC Professionals
乘風破浪
HVAC 專業人員的新視野



The Hong Kong Air Conditioning and Refrigeration Association Ltd.
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Smart Technology Cooling Tower



Closed Approached Temperature



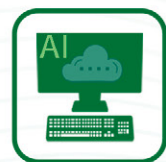
Variable Water Flow Spray Sprinkler Heads



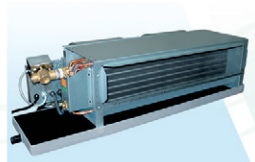
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Dr. Pachu LEUNG
President

It is with the utmost honor and privilege that I am elected as the new President of the Hong Kong Air Conditioning and Refrigeration Association (ACRA) for the term of 2024-2026. I would like to express my sincere gratitude to Ir MT Law, the Immediate Past President and our Council Members for their tremendous efforts during the preceding term of 2022-2024 to enhance the cohesiveness within the industry. As we transition into a new phase, I am dedicated to collaborate with the Council members and my fellow members, we will continue to work closely with various government bureaus and departments on the common interest of the Air Conditioning and Refrigeration industry.

The HVAC industry, akin to the ever-changing skyline of our city, craves for professionalism. In 2023, we proactively assisted our members in participating in the Voluntary Registration Scheme for Technicians Handling Mildly Flammable Refrigerant of Household Air-conditioners launched by EMSD. We eagerly anticipate the legislative process for mandatory registration to nurture the skilled workers recognized with safety awareness and professional knowledge of working practices. We participated in the first meeting of Refrigerant Technical Advisory Committee (RTAC) on 26 September 2024 and will fully work collaboratively with EMSD on this issue.

ASD has already disseminated the Amendment Specification about Galvanized Zinc Coating in August 2024. We organized '有關最新加強風喉鍍層質量控制及驗收程序-網上簡介會', to share the updated specification for on-going projects regarding the inspection requirements to our members.

For the new talents and youth, ACRA appreciates the importance of recruiting new talents to join our industry and our Council members fully supported related events and our youth committee. We participated in the welcoming event for young engineers of the E&M industry namely E&M Go! 2024 at HKCEC in November, which is organized by different E&M government departments, public entities and utilities, associations and unions etc. This youthful and energetic occasion not only provide fun atmosphere for the newcomers but also reinforced and promoted how our E&M industry can be their long-term career development creating a positive impression to them as well as to their parents.

The 47th WorldSkills Competition took place in Lyon, France in September 2024. It is a biennial event organized since 1996 to provide a platform for young people aged 21 or below to challenge themselves against professional standards and skills. Together with IPP Ir MT Law & I attended this meaningful occasion and witnessed participants obtained 1 gold, 1 silver, 2 bronzes and 11 excellence, the best results recorded.

Our youth committee assisted to organize few technical visits to Greater Bay Area (GBA), namely, Mesan Cooling Tower Factory at Zhongtang Town, Dongguan; District Cooling plants in QianHai, Zhongshan SAIVER WELAIRE Air Cond. Equip. Co., Ltd. and etc. I have to thank them for their great effort providing an excellent opportunity to our members with invaluable insights and a greater understanding of different kinds of AC products.

Message from the President

Continuous professional development is one of our core values at ACRA. A series of Joint Professional Training Courses organised by HKFEMC kicked off in October 2024. Our prominent ACRA members helped three lectures on the latest HVAC technologies and practices which will be conducted in January 2025. Don't miss this chance if you have not registered yet.

ACRA is always delighted to deliver training for our industry to provide all kinds of professional training in driving long-term developments of the construction industry in Hong Kong. Regularly co-organised with EMSD and VTC, Practical Training for household Air-conditioners using mildly flammable refrigerant and the theory training on next generation refrigerants development.

Annually, we offered a revision course for workers handling HFC and Blend Type Refrigerants for ASD Contracts and the thermal Insulation Installation course just completed in October. Special thanks to Training Committee Chairman Ir K.T. Cheuk and Training Committee Member Mr. T.S. Tsang for their time and hard work contributed.

ACRA will continuously offer various kinds of social activities in order to have a platform for our members to share joys and have better understanding of each other. In October, we conducted a technical visit to Osaka, Japan. I thank our members' efforts in organizing the visit (Panasonic, Shinryo Corporation, Hisaka Works Limited & Daikin Technology and Innovation Centre) provided an excellent opportunity to participants departed with invaluable insights. There will be more activities to come, the 2nd Caring event – Happy Bags Delivery, Bowling competition, etc. Please notice our forthcoming flyers and join these functions actively.

As we embrace the winds of change, let us not forget the importance of sustainable construction practices. The industry is increasingly focusing on green building methods, environmentally-friendly materials and smart design. Together, let us approach the goal of carbon neutrality.

I would like to take this opportunity to express my gratitude to all members and friends for their efforts and contributions.



The Council (2024-2026)

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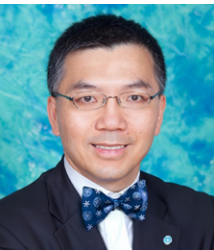
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IBSM is a high-productivity construction system where M&E installation to be modularised and prefabricated off-site. Making up with double skin panel and patented interconnecting system, it can reduce construction time with better quality control.

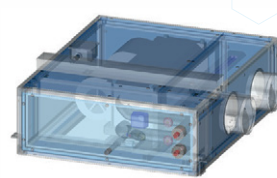
- Double-skin panel ductwork have better insulation, rigidity, structural integrity, increase accessibility and reduce overall structure loading.
- IBS Module can be pre-tested and pre-commissioning in factory before delivery.



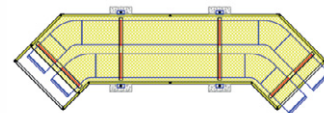
VAV Module



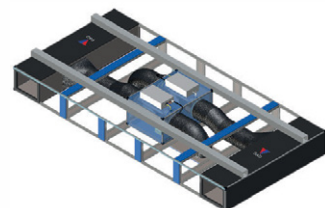
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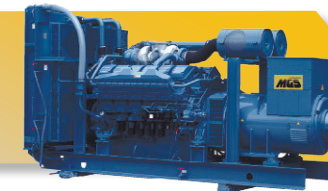


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Riser Module



Cable Containment
Module



PIP Riser Module



Pump Base
Module



MiMEP Module



Electrical Switch
Room Module

Technical Note on Quality Assurance of Zinc Coating Mass on Galvanized Steel Sheets for Air Ducts Fabrication


Introduction

The quality assurance of zinc coating mass on galvanized steel sheets is crucial for the fabrication of air ducts, which are integral to the efficient functioning of HVAC systems. The zinc coating provides a protective layer against corrosion, ensuring the longevity and reliability of the ductwork. In air duct fabrication, galvanized steel sheets are preferred due to their durability and resistance to rust, which are essential for maintaining air quality and system efficiency. The importance of quality assurance in zinc coating mass cannot be overstated, as it directly impacts the structural integrity and lifespan of the air ducts used in various applications, including multi-rise buildings, mega malls, hospitals, and industries.


Government Regulations

In Hong Kong, the government plays a significant role in enforcing quality control processes for zinc coating thickness on galvanized steel (GI) air ducts used in construction projects. The Architectural Services Department (ArchSD) has made amendments to the General Specification for Building Services Installation that mandate the use of zinc-coated, hot-dipped galvanized flat steel sheets conforming to BS EN 10346:2015, Grade DX51D+Z, with a coating type Z275 or equivalent standards. This requirement ensures a uniform standard of corrosion protection and quality for the materials utilized in the fabrication of air ducts.

The General Specification for Building Services Installation 2022 Edition (Incorporating Corrigendum No. GSBS02-2022) (hereinafter referred to as "BS_GS 2022 Edition w/Corr GSBS02-2022"), which will be effective from 1 September 2024, includes amendments that emphasize the need for on-site non-destructive sample tests using a coating thickness gauge as per BS EN ISO 2178:2016. These tests are part of the inspection and acceptance procedures for the coating of steel ductwork, ensuring that the zinc coating meets the required standards before installation.



Architectural Services Department
The Government of the Hong Kong Special Administrative Region



General Specification for Building Services Installation in Government Buildings of The Hong Kong Special Administrative Region

2022 Edition
(Incorporating Corrigendum No.GSBS02-2022)

6.2.2.1 GENERAL

The ductwork shall be fabricated from good quality full sized zinc coated hot dipped galvanised flat steel sheet to BS EN 10346:2015, Grade DX51D+Z, coating type Z275 unless otherwise specified in the Particular Specification or the Drawings. The flat steel sheet shall be manufactured in a process conforming to the relevant **quality assurance standard ISO 9001:2015 and the zinc coating mass shall be tested to BS EN 10346:2015, ISO 1460:1992 or equivalent standards. Valid manufacturer's certificate of accreditation to the recognized Quality Assurance System issued within three years before the material delivery to site shall be submitted. Material inspection certificate of the steel sheet showing the compliance with the above standard, issued by an organisation accredited under HOKLAS of HKAS, or an organisation accredited by an accreditation body mutually recognised by HKAS, shall be submitted. The test results shall be traceable with clear identification in the Delivery Note and marked on the ductwork indicating that the material tested is of the same batch as material used for the project.**

On-site non-destructive sample tests by coating thickness gauge, as specified in BS EN ISO 2178:2016, shall be conducted as part of the inspection and acceptance procedures for coating of steel ductwork. Additional samples for the second round non-destructive test shall be tested if the material failed in the first round of non-destructive tests. The Contractor may arrange destructive test at their own cost for verification if the results in both rounds of non-destructive tests do not comply with the coating requirements, otherwise the whole batch of material would not be accepted.

After an introductory period of 1 month, the General Specification for Building Services Installation 2022 Edition (Incorporating Corrigendum No.GSBS02-2022) shall **apply to all tenders to be invited on or after 1 September 2024.**

Fig. 1 - GS for BS Installation 2022 Edition (w/Corr GSBS02-2022)

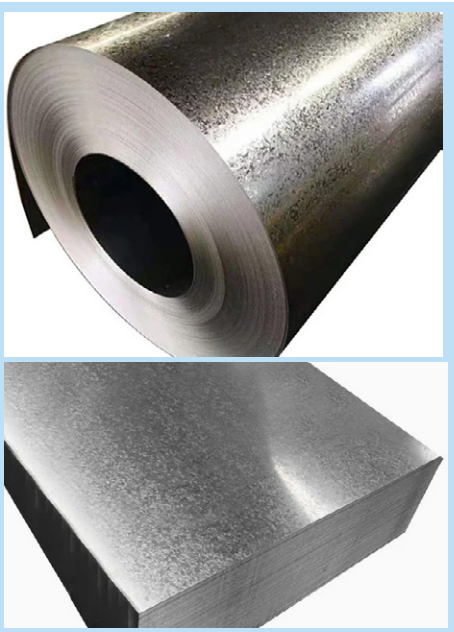
The government's commitment to enforcing these regulations is evident in the requirement for a valid manufacturer's certificate of accreditation to a recognized Quality Assurance System, such as ISO 9001:2015, and the submission of material inspection certificates showing compliance with specified standards. This ensures that the galvanized steel sheets used in air duct fabrication meet the standards for zinc coating mass.

Purpose of Zinc Coating on Air Ducts

Zinc coating on galvanized steel sheets serves multiple essential purposes in the fabrication of air ducts, enhancing their performance and longevity. The primary functions include:

- Corrosion Resistance:** One of the key benefits of zinc coating is its ability to protect steel from corrosion. The zinc layer serves as a sacrificial anode; when exposed to moisture and air, zinc corrodes preferentially to steel, thus extending the lifespan of the ductwork.
- Durability:** Galvanized steel ducts are more resistant to physical damage and environmental conditions than uncoated steel. The zinc coating creates a strong barrier that endures abrasions and impacts, making it especially advantageous in HVAC systems where ducts may face mechanical wear.
- Improved Aesthetics:** Zinc coating offers a clean, uniform appearance that is often favoured in visible installations. This aesthetic quality is particularly important in commercial applications where ductwork is directly visible by naked eyes.
- Ease of Fabrication:** The zinc coating enhances the workability of the steel, making it simpler to cut, shape, and join. This improvement leads to more efficient manufacturing processes and enables precise fabrication to meet specifications.

Fig. 2 - Galvanized Steel Coil and Sheet with Zin Coating



The zinc coating on air ducts is crucial for enhancing corrosion resistance, durability, aesthetics, ease of fabrication, and thermal efficiency, making galvanized steel an ideal choice for HVAC systems.

Impact of Zinc Coating Thickness on Air Duct Performance

For the ductwork installed in an area of low corrosivity category as listed in Table 24 in Specification for Sheet Metal Ductwork DW/144 published by BESA, it is acceptable to use Grade DX51 D+Z with Z140 coating for interior ductwork fabrication (DW/144, Section B.1) and Grade DX51 D+Z with Z275 coating for external ductwork fabrication (DW/144, Section 26.2.1).

Grade DX51 D+Z with Z275 coating is a robust and compliant choice for air duct fabrication in HK. While lower zinc mass may be acceptable under specific conditions, it is generally advisable to adhere to Z275 to ensure adequate corrosion protection. Increasing zinc mass significantly may not provide proportional benefits and could lead to higher costs and logistical challenges.

Table 24 – Corrosive categories and life-time expectancy (as provided by Tata Steel)

				Galvanized steel designation		Z140	Z275	Z600
				Nominal Zinc Coating Thickness (µm per side)		9.8	19.3	42
Corrosive Category		Estimated zinc corrosion rate (according to BS EN ISO 12944-1998)	External Ductwork Systems	Interior Ductwork Systems	Lifetime expectancy			
C1	Very low	Up to 0.1 µm per year	-	Heated buildings/ neutral atmosphere	≥ 100yrs	≥ 200yrs	≥ 400yrs	
C2	Low	0.1 mm to 0.7 µm per year	Rural areas, low pollution, dry	Unheated buildings, possible condensation	15 to 100yrs	30 to 200yrs	60 to 400yrs	
C3	Medium	0.7 mm to 2.1 µm per year	Urban and industrial atmospheres. Moderate SO2 pollution Moderate coastal Cl	Production rooms with high humidity & some air pollution	5 to 15yrs	9 to 30yrs	20 to 60yrs	
C4	High	2.1 mm to 4.2 µm per year	Industrial and coastal	Chemical processing plants, swimming pools	2.5 to 5yrs	5 to 9yrs	10 to 20yrs	
C5	Very high	4.2 mm to 8.4 µm per year	Industry with high humidity and aggressive atmosphere Marine coastal, offshore, high salinity	Permanent condensation and high pollution	1 to 2.5yrs	2 to 5yrs	5 to 10yrs	

Fig. 3 - Extracted from DW/144 Table 24

Zinc Coating Mass Determination Methods


Both BS EN 10346:2015 and ISO 1460:1992 provide robust methodologies for determining zinc coating mass, critical for Both BS EN 10346:2015 and ISO 1460:1992 provide robust methodologies for determining zinc coating mass, critical for ensuring the performance and longevity of galvanized steel products. The following is the comparison of methods:

- Accuracy and Precision:** Both methods aim to deliver accurate measurements, with specific guidelines for sample preparation and handling to minimize errors.
- Scope:** BS EN 10346 is more specifically tailored to hot-dip galvanized steel strip and sheet, while ISO 1460:1992 can be applied to a broader range of galvanized products.
- Chemical Solutions:** Both standards utilize acid solutions for zinc removal and gravimetric measurement, ensuring that the measurement process is consistent and reliable.

Understanding these standards is vital for engineers and manufacturers in ensuring compliance with quality and performance requirements in applications like HVAC systems.

Enhancement Measures on G.I. Air Duct Inspection and Acceptance Procedures

Enhancing the on-site inspection is one of the major changes in BS_GS 2022 Edition w/Corr GSBS02-2022. On-site non-destructive sampling tests using a coating thickness gauge (e.g. Elcometer), as specified in BS EN ISO 2178:2016, will be conducted as part of the inspection and acceptance procedures. Theoretical guidance range for coating thickness per surface in the single spot test is 13 to 27µm for coating Z275 as stipulated in BS EN 10346:2015. The Flow Chart of Material On-Site Inspection is shown in Fig. 5 below.



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Integral Model Options				
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	Resolution: 0.1µm; 0-100µm; 1µm; 100-1500µm (0.01mil; 0-5mils; 0.1mil; 5-60mils)			
	Ferrous 鐵基	Model E	Model B	Model S
Elcometer 456 Ferrous Integral	A456CFE11	A456CFB11	A456CFS11	A456CFT11
Elcometer 456 Non-Ferrous Integral	-	A456CNB11	See separate gauges with NC Probe	See separate gauges with NC Probe
Elcometer 456 Dual FNF Integral	A456CFNFE11	A456CFNFB11	A456CFNFS11	A456CFNFT11

Fig. 4 - Coating Thickness Gauge

Conclusion

The technical note focuses on ensuring zinc coating quality for galvanized steel sheets in air duct fabrication, stressing regulatory compliance and best practices. It highlights DX51D+Z grade and Z275 coating for air duct application in HVAC system, advocates non-destructive testing following BS EN ISO 2178:2016, and underscores adherence to BS EN 10346:2015 standards.

This note encourages collective commitment to quality assurance and aims to foster dialogue and collaboration in the industry. It is a small yet significant contribution to the pursuit of excellence in construction and HVAC, shared to enhance knowledge and promote industry-wide cooperation and learning.

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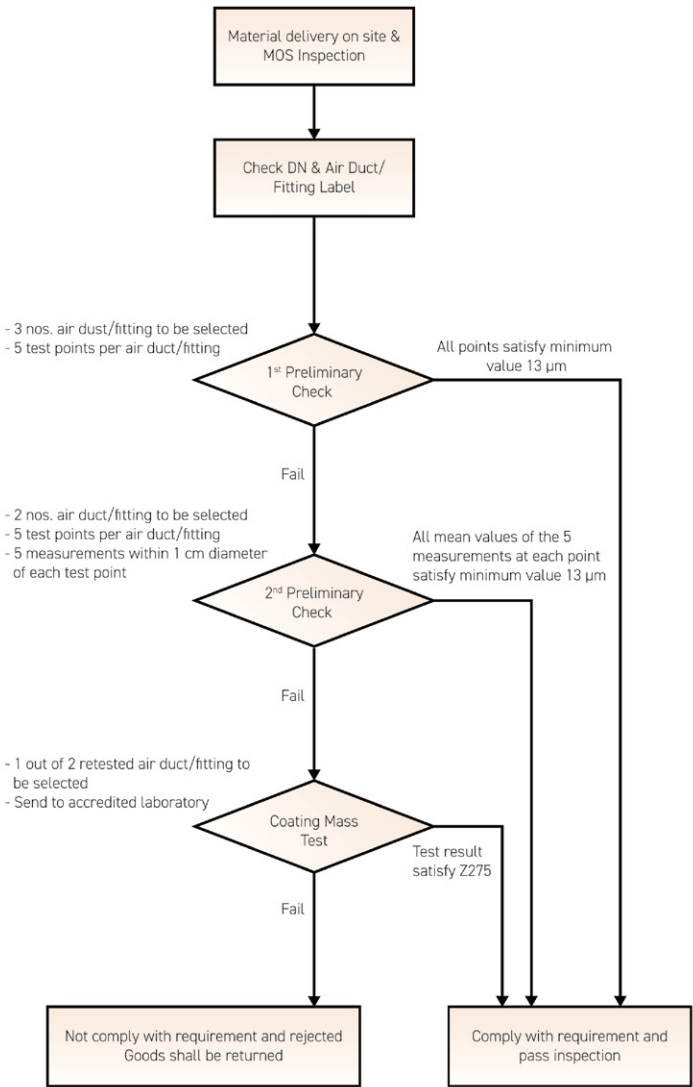


Fig. 5 - Flow Chart of Material On-Site Inspection




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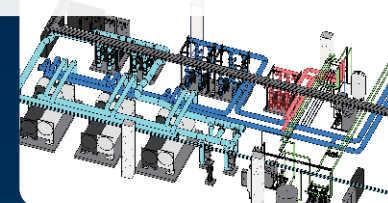
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人物專訪

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張如山先生，職業生涯始於一名學徒，通過在不同崗位上的持續努力和學習，逐漸建立起自己的專業地位。對空調製冷行業的熱愛推動他不斷學習、報讀進修課程探索新技術，並自資進行創新研發。正是這種堅毅不屈、勇於挑戰的精神，使他成為了行內的“張大師”。



知識累積與技術精通

張如山先生，洋名 Winston CHEUNG，好友們會親切地稱他為“雲絲頓”或“山哥”。自17歲血氣方剛時便踏上了學徒之路，後來“山哥”有幸加入了機電工程署成為一名技工，並在此崗位上默默奉獻了十個年頭。因對知識的渴求和對專業技能的不斷追求懷着滿腔熱誠，他白天勞作，晚上學習不輟，繼續追求工程、商科和管理學知識。當經驗累積足夠之後，“山哥”離開了機電署，先開設保養工程公司，後更創立永通冷氣工程(香港)有限公司(公司於2003年轉讓給目前的營運者)，全力向空調製冷市場發展。

當被問及如何對空調系統瞭如指掌時，他輕描淡寫地表示，這一切都源於他對閱讀的熱愛。他說自己很多的知識主要來自於閱讀一本又一本的專業書籍，累積了豐富的理論基礎。對於空調技術，“山哥”也是通過實際操作和實踐，逐步建立起自己的專業知識體系和心得，並經常拜訪國內外不同的供應商和參觀廠房，積極學習各種技術和知識。當遇到合適的技術和機器時，他會與專業工程師、教授一起研究，尋找將這些技術融合並改良的可能性，一經確認就會嘗試應用到空調製冷系統中。

技術革新：脈衝式聚塵器與室內空氣品質

張大師在空調技術領域的專業知識並非紙上談兵，而是有實質“落地”的方案。早在70年代，他應邀為內地著名煙草公司的生產車間進行空氣品質改善。當時，車間內煙霧瀰漫，急需一套高效能的空氣處理機組(俗稱“風櫃”)，製冷功能要達到50冷噸，同時實現穩定的溫度濕度控制功能，使車間既能保障員工的健康安全，亦能令機械設備順利運作。

張大師及其團隊在項目初期就意識到，面對如此大量的煙塵，他們需要採取特殊措施。他們首先向美國的供應商訂購了專業的過濾器，但不幸的是，在短短三個月內，這些過濾器就因為煙塵的過度磨損而損壞，需要報廢。這次失敗讓張大師意識到，煙塵累積導致的破壞力遠超預期。

得到這次經驗後，張大師對風櫃進行了徹底的改進，特別是對過濾系統進行了深入的優化，他聯繫美國供應商，要求製造一批新型的順流式過濾器(Downflow Filter)，並在系統中增加了一個聚塵器(Precipitator)，這是一個創新的舉措。當過濾網上的煙塵積聚到一定程度時，壓差系統(Pressure Differential System)會啟動空氣壓縮機(Air Compressor)，將所有堆積在塵網的煙塵以反沖式自動清理到聚塵器內。這項創新的技術，不僅解決了當時的問題，也開創了脈衝式聚塵器(Pulse System Precipitator)的先河，亦對後來的空氣過濾技術發展有深遠的影響。



在完成了國內煙廠的項目後，張大師意識到脈衝式技術 (Pulse System) 同樣適用於空調系統。回港後，他將這項技術引入並應用到本地的項目中。其中最為人所稱道的，無疑是為香港房屋委員會開發的「樂富中心」(現稱為「樂富廣場」) 量身訂製的大型商用風櫃。這台風櫃自啟動起，連續運轉了5年，期間從未需要清洗過濾網、冷卻盤管 (Cooling Coil) 或風喉，即使在拆卸時，其狀態依舊如新。

這是怎麼實現的？脈衝式技術(Pulse System)當時與壓力傳感器(Pressure Sensor)及控制器(Controller)相連，當過濾網上的積塵達到一定水平時，控制器會根據預設的時間，在晚上商場無人時自動進行操作，空氣壓縮機 (Air Compressor) 對每個過濾網進行沖擊，利用震動的方式將灰塵震落到下方的集塵箱中。儘管這項方案的成本相對較高，但從無到有，從有到優，最終讓客戶滿意並樂意付款，其成效(effectiveness)必定遠遠超過其價值 (value)。

張大師一再強調，他從不提倡清洗風喉，因為風喉的曲折和變化使得清潔工作困難重重。他認為，只要擁有一個高效的過濾系統，就能防止灰塵侵入室內空調系統的任何部分。同樣地，如果換氣系統運作良好，排放到室外的空氣也將維持應有衛生標準。

當時的空調過濾系統和空氣淨化技術，如今已成為確保室內空氣品質 (Indoor Air Quality - IAQ) 的重要元素。許多人可能不知道，目前市場上流行的“空氣淨化機”，張大師早在2005年已經為本地一所醫院研發了第一代產品，將二氧化鈦(TiO₂)塗在空氣濾淨器的過濾網上 (Air Purifier with Titanium Dioxide (TiO₂) Coating)，並在2007年獲得了香港知識產權公報第51類國際專利認證。不幸的是，當時市場對這樣創新的產品接受度不高，導致銷售成績未達預期。如果將這款產品放在12年後的COVID-19疫情時期，相信一定會大受歡迎。

張大師在對話中顯露出對室內空氣品質 (IAQ) 的深切關注，他指出若能透過立法來提升室內空氣質量，將會是對市民極大的福祉。因為很多市民長時間在室內工作，室內空氣質量的好壞直接關係到個人健康和精神狀態，如果有人染病和室內空氣質量處理得不好，這樣人與人透過空氣交叉感染的風險就會提高。



知識累積與技術精通

張大師亦慷慨分享做人處世的見解，啟迪新一代後輩。當中就提及到一位最令他起敬的“好官” - 2014年辭世的建築署前總屋宇設備工程師 - 劉國藩先生。張大師回憶說，劉先生當年行事果斷，並勇於為公眾嘗試新技術。例如，1993年啟用的香港仔街市的空調系統，特別分隔活家禽和熟食攤位的空調系統，其鮮風量設定與一般空調系統有顯著差異及提昇。此外，劉先生對於“香港製造”的產品，只要質量和效能跟進口產品一樣，他也會給予高度評價和支持，彰顯他實幹的精神。

張大師於1986年創立了製造空氣處理機的公司(Air Master)，多年事業發展順利，多得一班精英功臣在公司內外打點。如今，雖然張大師的公司業務已劃上句號，但他在這些年裡廣結良朋。現時83歲的他，在閒暇時光，會跟以前一班打高爾夫球的好友一起去旅遊和麻雀耍樂來消磨時間，或者與老朋友和舊員工聚會，舊員工們依然親切地稱呼他為“老豆”。對張大師而言，人生並無遺憾，他認為，人生在世，財富和名利不如身邊好友成群，悠然自得的愜意生活。



後記：

張大師的好學和創新精神，不僅豐富了他的專業知識，也使他在空調技術領域取得了卓越的成就。他的持續追求進步態度，也激勵著同業打破墨守成規，要不斷創新求變。

訪問當日張大師已杖朝之年，但心境仍在荳蔻年華，對空調製冷業界的熱情從未熄滅，對此，小編不得不虛心拜服。

在訪談中，張大師提出了幾個問題，這些問題當時未能得到解答。現在，我們將這些問題分享出來，希望集思廣益得到進一步的思考。

為何暖通空調工程師在社會中的認受性不高，儘管他們在建築施工中扮演重要角色？

雖然每棟建築物的暖通空調系統很重要，但大樓的結構和整體設計往往是走在前面和最重要，暖通空調系統和工程像是基本配套，在沒有對人體健康大影響之下，重要性比較後。但當室內空氣品質立法以後，這看法就會完全不同。

室內環境空氣品質是否應該以立法來規範？

醫院應為整個院區設定統一的空氣品質標準。如果只在產房和隔離病房提高空氣品質，而忽略其他區域，那麼醫院的其他區域仍有可能受到空氣中殘留細菌的威脅，醫院系統應使用全鮮風系統。

以前簽合約之後就會收到訂金，為何現在的供應商和專業承包商 (提供技術服務的我們) 似乎比過去更需要冒險？在沒有訂金下，為何需要先投放人力物力，變相不是變成投資者嗎？

市場失衡和處於供應鏈較低層，合約條款往往不利於我們。



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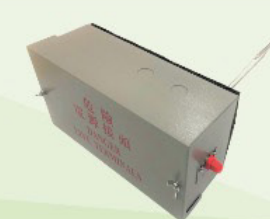
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Project Highlight

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About SKYCITY
A World-Class Destination at Hong Kong International Airport, Comprising office, hotel, retail, dining and entertainment facilities.

Member's Role in this Project:

- Mechanical Ventilation and Air Conditioning Installation Contractor
- Staircase Pressurization System Contractor
- Smoke Extraction System Contractor

Completion Year: 2023

Member / Company Name
REC Engineering Contracting Company Limited

System Description

Developed by New World Development, Skycity Site A3 together with Site A2 (named as 11 SKIES) is Hong Kong largest hub for Retail, Dining and Entertainment (RDE) with the total gross floor area of around 350,000 sq. m. The scope of work in Site A3 (exclude retail portion) involve supply and install mechanical ventilation system with gas sensor control for basement, dynamic smoke extraction system (SES) and staircase pressurization system (SPS). There are total 14 number of basement Fire and Rescue Stairway with the provision of Class B Staircase pressurization systems. Each respective staircase shaft is provided with independent pressurization fans, ductwork and control system. Total 4 number of dynamic smoke extraction system are provided for Basement Express Escalator Lobby and Loading & Unloading area, G/F Loading & Unloading area and Transport Terminus. The idea of dual purposed air duct design is adopted for Basement Loading & Unloading area and GF Loading & Unloading area, while dual purposed of both fan and duct design is adopted for Transport Terminus.

Challenge of Project

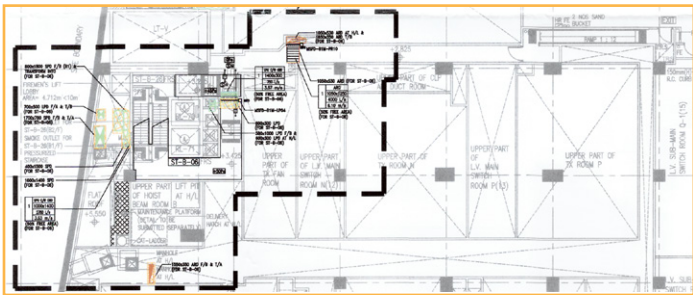
- 01

To complete bulky FS314 Document Submission in limited time. It was required to plan an efficient workflow for submission at initial stage.
- 02

To coordinate with different trade parties to complete system T&C for SES & SPS before FS site inspection. There are total 123 no. of SES and SPS related fans and around 300 no. of motorized fire and smoke damper for the system. There are over 150 nos. of interfacing signal from FS sub-contractor to activate the SES and SPS system. It was required to review the T&C progress with other trade parties daily and fine tune the T&C programme from time to time.
- 03

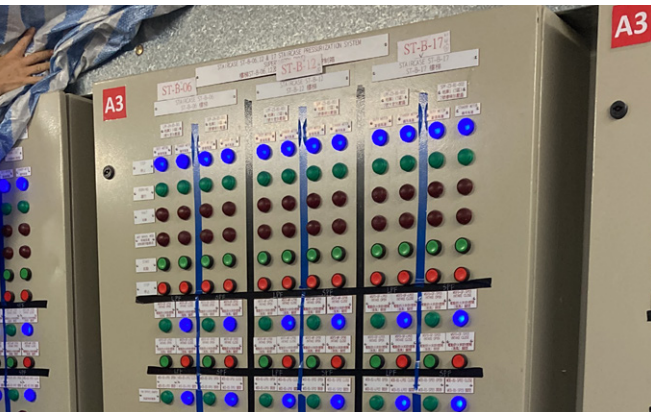
To go through a long period of Fire Service site Inspection at around 4 months. The inspection Team have to well collaborate with different trade parties to achieve the Goals.
- 04

The irregular shape staircase, lift lobby, accommodation with long corridor increase the complexity of SPS T&C. The T&C team have to conduct multiple trials with different condition and cases so as to obtain the best set up for the pressure control through program optimization and some physical adjustment of relocation of grilles.



Intelligence Modules for Staircase Pressurization Systems (SPS) & Dynamic Smoke Extraction System (SES)

In view of the complexity of the control of the SPS / SES, the control system was divided into several subordinate control panel by using AFA panel as mimic driver for the supervisory panel and the Fire Alarm Modules for monitoring and control of the system. It is not only improving the flexibility of site installation and Testing & Commissioning, but also convenient for future maintenance.



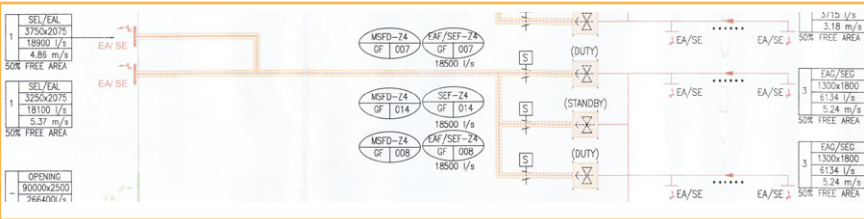
Dual Purpose Fans and Duct in Dynamic Smoke Extraction System

The ideas of utilizing dual purposed fans and duct can minimize the plantroom space, the number of fans and duct can be reduced a half to reserve space for other usage. Nevertheless, careful attention should be paid for the system control.



For basement level with dual purposed duct arrangement, Smoke extraction fans and make up fans shall be connected in parallel to exhaust air fans and fresh air fans respectively. In normal operation, only exhaust/fresh air fans for mechanical ventilation system shall be kept in operation, all the motorized fire and smoke dampers at branch ductworks of the smoke extraction systems shall be closed. Upon receipt of fire signal, the smoke extraction fan and make up fan served for this fire compartment will be energized automatically, and the exhaust/fresh air fan with corresponding MSFD should be off / closed.

For transportation terminus with dual purposed fan and duct arrangement, the smoke extraction fan will also be used for mechanical ventilation system, and the corresponding motorized fire and smoke dampers shall be opened. The fan shall be operated at variable speed as according to the actual demand. Upon receive of any fire signal, the dual purposed smoke extraction fans shall be operated in full speed automatically.



Mechanical Ventilation at Basement Carpark & Transport Terminus

Exhaust fan with a series of induction fans shall be operated as according to the CO concentration in Basement Carpark. This induction ventilation system is based on a number of small, strategically located high velocity fans in place of the large and expensive distribution ductwork traditionally used in car parks. The pollutant being carried by the high velocity jet fan can be directed to the main exhaust point. The speed of exhaust fan is varied in according to the CO level. Thus, the carpark maintains an accepted CO level as recommended by EPD.

In Transport Terminus, the fan speed of both exhaust and fresh air fan are also varied in according to the gas concentration level including CO, NO2 and SO2.





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世界技能大賽

空|調|製|冷 傳|承|之|道

世界技能大賽 (WorldSkills Competition) 是一項全球性的職業競技平台，被譽為「技能界奧林匹克」，每兩年舉辦一次，匯集了來自近70個國家和地區的1400多名參與者，競爭62個技能類別。第47屆世界技能大賽於2024年9月10日至15日在法國里昂舉辦成功，本屆香港代表隊共派出37名技能精英參與32個比賽項目，並取得了歷史性的成績，勇奪1金1銀2銅及10項優異獎章。這些成就不僅展示了香港技能人才的專業水平，也在全球職業教育領域中為香港贏得了尊重和認可。



在眾多技能比賽項目中，當中有一項被視為重要的競賽項目一直與大家息息相關，這就是 - **空調製冷 (Refrigeration and Air Conditioning "RAC")**，而今年代表空調製冷參賽的，就是年紀輕輕來自機電工程署的 - **鍾子洋**！

空調製冷 (RAC) 是世界技能競賽其中一項主要的競賽項目，專注於培養和測試參與者在設計、製作、安裝、運作、維護冷凍設備以及空調設備安裝與維修方面的技能。這個領域的競賽項目對於應對全球氣候變遷、提升能源效率以及推動綠色建築具有重要意義。選手需要在短短4天的競賽日內展示。

他們在冷凍系統零件的安裝、管道和電纜的設計、製作、安裝、焊接、冷凍設備運行調試與檢測、空調系統故障的檢修及零件更換、製冷劑的使用及回收等方面的技能。



國家隊健兒在空調製冷領域的競賽中表現突出，展現了國家在該領域的專業技能和實力。香港作為中國的特別行政區，擁有先進的空調冷凍技術，以及一支技術精湛的專業人才團隊。香港的專業團隊和青年學生可以透過參與世界技能大賽，與來自世界各地的頂尖技能人才交流學習，提升自身的技術水準和國際競爭力。

在大賽期間，香港代表隊與來自世界各地不同行業的年輕精英健兒進行了愉快的交流，與年輕一代的交流更是讓我們感到興奮不已，他們的熱情、創新思維和對未來的憧憬，讓我們對產業的未來發展充滿了期待。年輕一代的參與和成長，無疑是推動我們產業進步的新血。這種互動讓我們更加堅信，投資年輕人的教育與培訓，是我們產業成功的關鍵。以世界技能大賽為契機，我們產業正期待邁向一個更綠色、更有效率、更永續的未來。讓我們拭目以待，看看這個「技能界的奧運」將如何繼續激發我們的潛能，推動我們不斷前進。



隨著法國里昂的圓滿落幕，目光轉向了下一屆的舉辦地點 - 上海。2026年，這座充滿活力的國際大都會將迎接來自世界各地的技能精英，共同見證新一屆的「技能界奧林匹克」。屆時，上海必定以其獨特的魅力和先進的設施，為全球的技能青年提供一個展示才華、交流經驗、激發創新的平台。讓我們共同期待2026年上海世界技能大賽的到來，見證技能如何改變世界，創造未來。



在世界技能大賽的空調製冷(RAC)項目中，港隊代表鍾子洋(子洋)的表現令人矚目。隨著比賽的落幕，我們有幸邀請到子洋及其訓練團隊參與專訪。在這次深入的對話中，我們不僅見證了子洋與導師們之間深厚的情感，還探索了他過去兩年如何從一名新手到精英選手的蛻變之旅，一起走進了技能奧林匹克的世界。



從白紙到菁英的蛻變

子洋的旅程始於兩年前，當時他還是一個對空調製冷技術幾乎一無所知的新手。在導師悉心指導下，他開始了從基礎到高級技能的全面學習。而整個團隊不僅是子洋的技術工藝教練，更是他的心靈導師，幫助他克服了一個又一個的挑戰。

導師的悉心指導 團隊合作的力量

子洋在世界技能大賽中的表現，離不開其背後團隊的核心人物——主管導師林秉昇(昇哥)和助教馮德偉(Alex)，以及陪練姜鎮洋(鎮洋)。昇哥的專業指導和心靈支持，為子洋的技能提升和心態調整提供了雙重保障。他們之間的互動，建立在深厚的信任基礎上，昇哥的每一次激勵都轉化為子洋成長的動力。這支團隊的默契配合，確保了子洋在面對挑戰時，總是能將挫折轉化為學習的機會。



國際舞台上的榮耀

在法國里昂的世界技能大賽上，子洋不僅代表香港，更代表了他背後強大的團隊。當他站在國際舞台上時，他知道自己的努力不僅是為了個人的榮耀，更是為了回報那些一直支持他的人，而每一次的付出都凝聚了團隊的汗水和智慧。



情感體驗

現場支持的情感體驗

當被問及看到機電署署長、院校主席、機電業界代表以及導師等一眾貴賓親自來到現場支持自己的比賽時，子洋坦言，雖然感到有些壓力，但內心更多的是開心。子洋知道有這麼多人支持他，他想要做出一些成績來回報他們。儘管他已經提前知道一眾貴賓的到來，但在比賽過程中，因完全沉浸在自己的工作中，沒有其他感覺。直到比賽結束的那一刻，一眾貴賓大聲喊出他的名字，為他鼓掌，子洋才真正感受到他們的支持和鼓勵，這讓他非常感動。



賽後的反思與展望

比賽結束後，子洋感慨萬分。他深知自己的成長離不開導師的努力教導和團隊的無私支持。他的故事不僅是關於個人成就的故事，更是關於團隊合作和共同成長的故事。子洋表示，他將把這次比賽的經驗作為職業生涯的新起點，繼續在空調製冷領域上追求卓越。

子洋的世技賽之旅是一個關於熱情、毅力和團隊精神的故事。他的故事引證了，當一個人得到正確的指導和支持時，他能夠實現多麼偉大的成就。鍾子洋和他的團隊，以及他的導師，共同寫下一段令人難忘的歷史。

總的來說，鍾子洋的世界技能大賽之旅，不僅是他個人技能的展現，更是他與導師之間深厚感情與團隊合作的體現。這些經歷，無疑將成為子洋人生中寶貴的財富。



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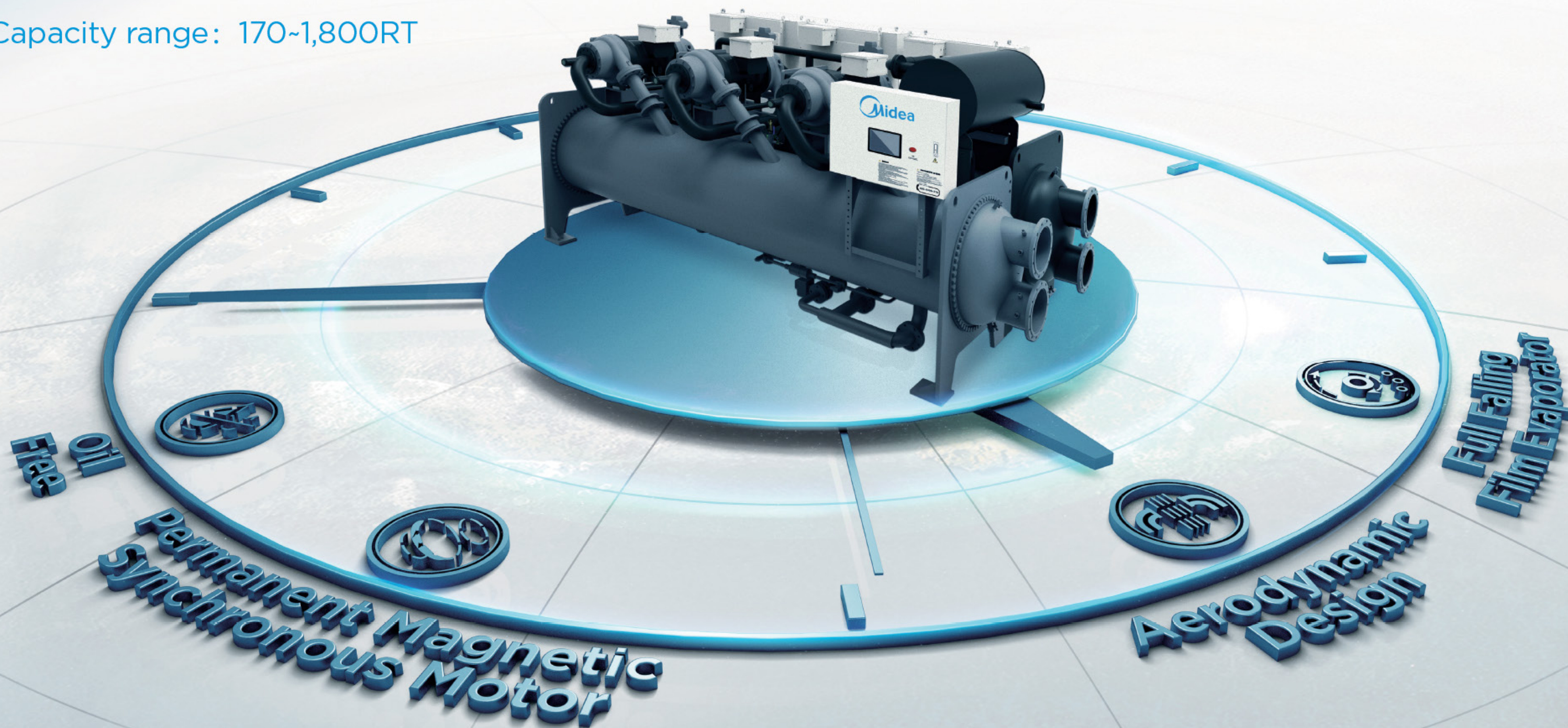


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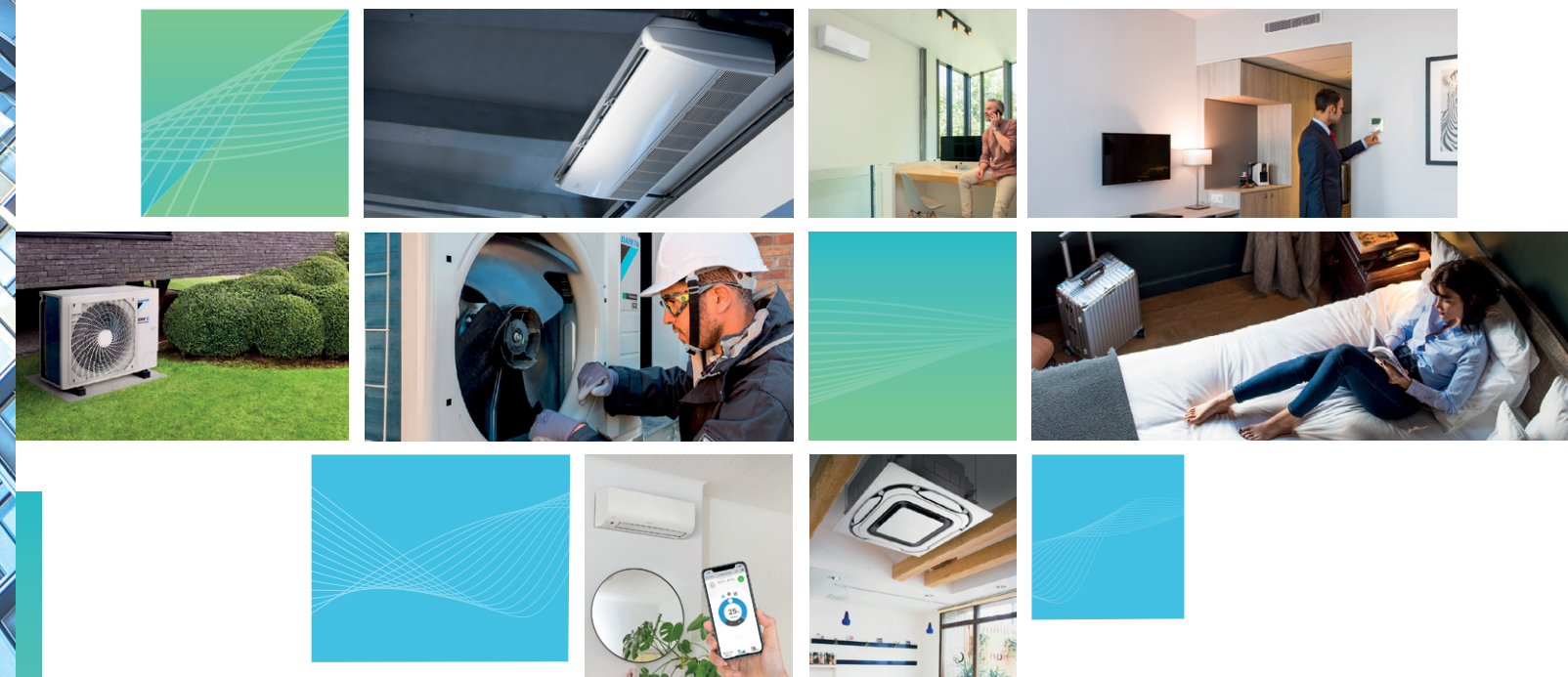


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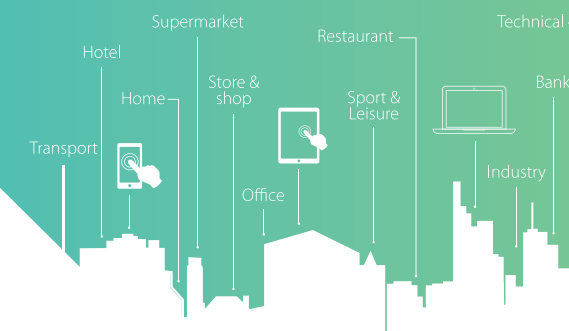
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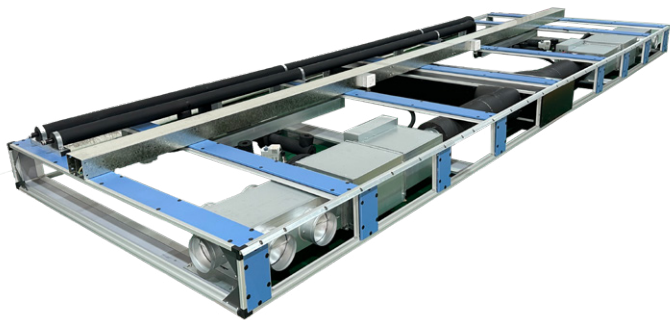


The Next Generation in Modular Construction for HVAC

Introduction

MiMEP, which stands for Multi-Trade Integrated Mechanical, Electrical, and Plumbing, is a cutting-edge approach in the construction industry that revolutionizes the integration of these critical building services. By prefabricating these services into modular units, MiMEP streamlines construction, enhances quality, and reduces on-site labor demands.

MiMEP 2.0 is the next iteration of this technology, addressing specific challenges and setting new benchmarks for efficiency and performance.



Industry Trends and Best Practices

The construction industry is trending towards industrialized construction methods like MiMEP, which increase productivity, enable concurrent work off-site and on-site, and improve construction safety. Best practices in MiMEP adoption include the use of BIM for 4D coordination, off-site fabrication, and integrated air-handling units. Successful cases, such as the West Kowloon Government Offices and the Temporary Quarantine Camps, demonstrate the benefits of MiMEP in reducing construction periods and site labour.

Challenges and Opportunities

MiMEP 2.0 addresses challenges such as complicated coordination processes, spatial constraints, and poor working environments in traditional construction sites. It offers opportunities for increased productivity, improved quality, and enhanced working conditions. The adoption of MiMEP 2.0 can also lead to innovative technologies like BIM, RFID, and augmented reality, which facilitate design, fabrication, packaging, delivery, assembly, testing, commissioning, maintenance, and disassembly.



Understanding MiMEP

MiMEP systems integrate HVAC, electrical, and plumbing services into prefabricated modules. These modules are designed using Building Information Modelling (BIM) for spatial coordination and clash detection, ensuring that all components fit perfectly when assembled on-site. The off-site fabrication allows for parallel activities, reducing construction timelines and minimizing disruptions on-site. MiMEP also enhances safety by reducing the need for complex on-site coordination and high-altitude work.



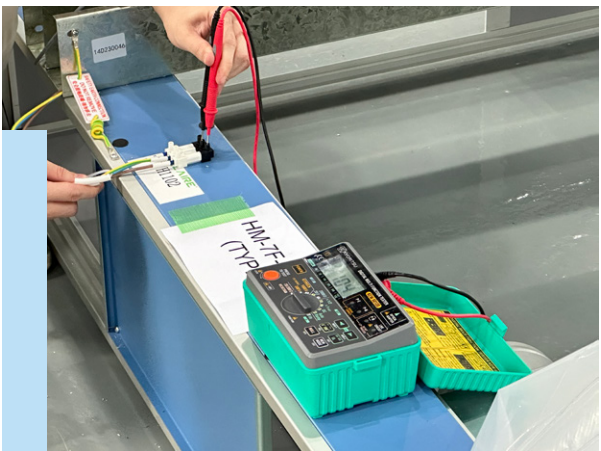
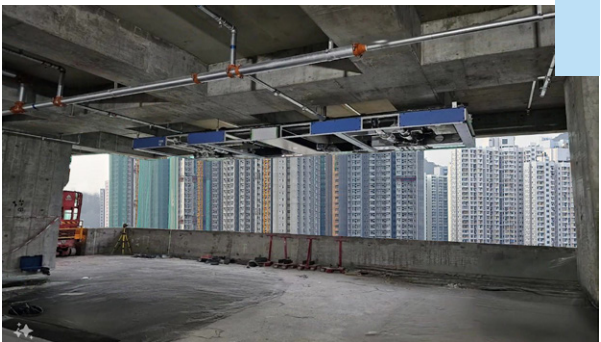
The Need for MiMEP 2.0

MiMEP 2.0 introduces double-skin panels with PU foam injection integrated with all M&E services such as ductworks, VAV boxes, water pipes, cables and trunks, sensors, etc offering several advantages:

- 01 OPTIMIZED ENERGY USE:**
The double-skinned design with PU foam insulation reduces heat transfer, leading to improved energy efficiency and cost savings for building operations.
- 02 PRE-TEST AND PRE-COMMISSIONING:**
Ceiling VAV modules can be pre-tested and commissioned before ex-factory.
- 03 HEALTHIER INDOOR ENVIRONMENTS:**
Reduced air leakage prevents the ingress of contaminants, improving indoor air quality and contributing to occupant health and comfort.
- 04 ACOUSTIC COMFORT:**
Double-skinned ducts provide superior sound insulation, reducing noise pollution within buildings and enhancing occupant well-being.
- 05 EASE OF INSTALLATION AND MAINTENANCE:**
The light weight and patented hanger design that simplify installation and maintenance processes, reducing labour intensity and potential for errors.
- 06 CLEANABLE AND FLEXIBLE:**
Panels are easily removable for cleaning or alternation.
- 07 LONG-TERM DURABILITY:**
Double-skin panels offer long-lasting performance and resistance to corrosion and wear, ensuring the longevity of HVAC systems.

Conclusion

MiMEP 2.0 is a critical advancement for the HVAC and construction industries, offering solutions to pressing challenges and setting a new standard for system integration and performance. By embracing MiMEP 2.0, the industry can achieve higher standards of efficiency, quality, and sustainability. The adoption of MiMEP 2.0 is not just an upgrade but a response to the industry's need for more efficient, safe, and sustainable construction practices.





Drainage Services Department Office Building

MiMEP + Integrated AHU

Features

- Integrated AHU completed with water pipes, valves, sensors, damper actuators, DDC and LMCP
- MiMEP designed plenums for PA, RA and SA ductworks connection
- Built-in silencers for RA and SA plenums
- Built-in VAV boxes for dedicated outside air control
- Combined plenums design for 2 nos AHUs. If one AHU break down, other AHU can serve the remaining area

SA, RA, PA Plenum

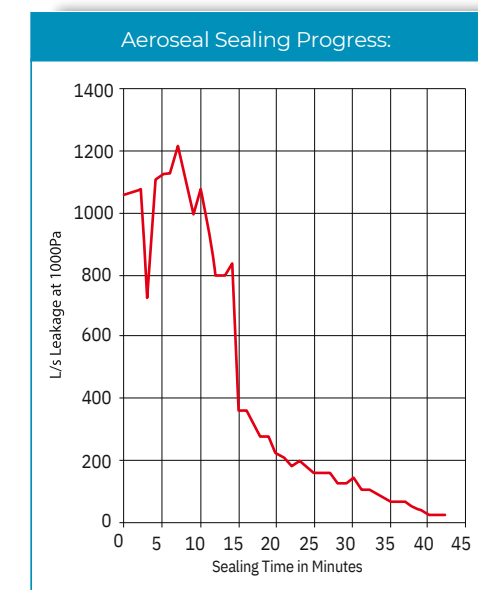


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- 減低維修成本



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公司簡介與歷程

COMPANY PROFILE

高美空調於1989年在香港成立，為香港本土首家中央空調生產企業。35年以來，公司已成長為集研發、設計、生產和銷售一體的高新技術企業，並先後在順德、開平設立生產基地。高美公司自成立伊始，堅持技術為主、質量優先，以領先行業的定制技術，為客戶提供各種高性能產品，創造用戶無以倫比的體驗。高美一如既往，匠心制造，初心不改，以精湛技術服務全球客商。



35周年發展大事記 CHRONICLE OF EVENTS

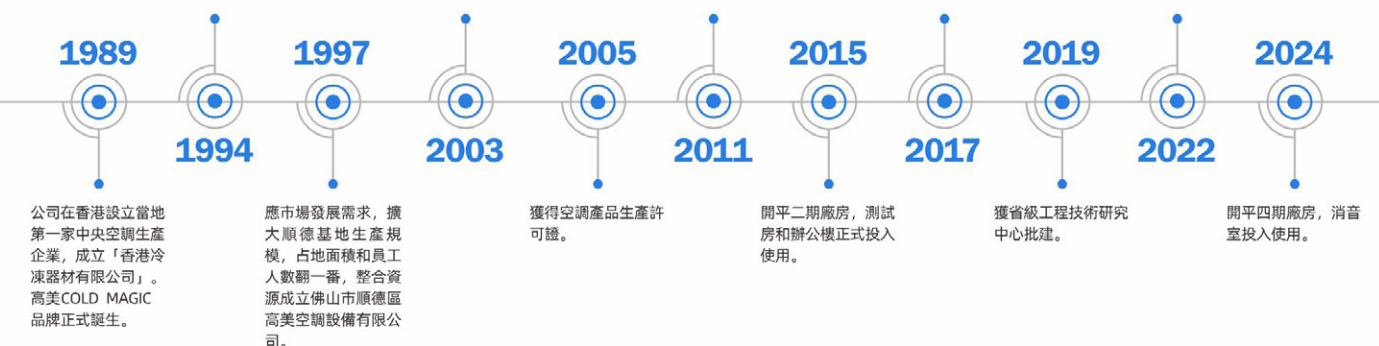
公司在順德建立了新的生產基地，成立「順德怡輝空調設備有限公司」。

開拓澳洲和南非等國際市場，得到德國工程師協會VDI6022和全歐洲認可的EUROVENT認證。

設立「開平高美空調設備有限公司」，佔地面積七萬平方米。

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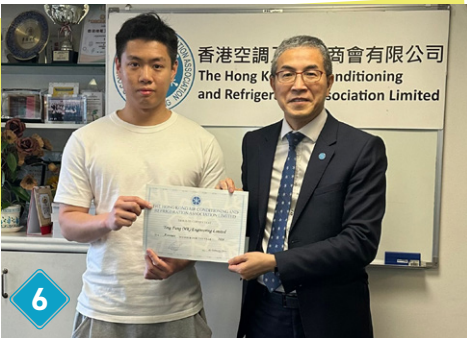
Annual General Meeting 2024

The ACRA Annual General Meeting has been held on 14 June 2024 to conclude the achievements from the past term, and conduct the election for the New Term Year 2024 - 2026. Congratulations to Dr. Pachu Leung elected as the President, together with all council members, who will extend the commitment of ACRA to advance the evolution of air conditioning industry to a more prosperous future through strong bonding with public and private bodies along with our members and stakeholders whilst concerning ESG of our operation.



NEW MEMBER

Membership		Company Name	Join Date
1	Associate	Gainfine (E&M) Engineering Company Limited	Jun-24
2	Associate	Shenzhen Qianhai Energy Technology Development Company Limited	Jun-24
3	Associate	Four Ways Engineering Co.	Jul-24
4	Associate	City Facilities Management (HKG) Limited	Sep-24
5	Associate	Mitsubishi Heavy Industries (HK) Limited	Sep-24
6	Associate	Precision Engineering Services Limited	Sep-24



ACRA Golf Day - Siemens Cup and President Cup



As one of the most popular sport events, over 50 contestants from the HVAC industry have joined the ACRA Golf Day – Siemens Cup and President at PHOENIX HILL Golf Club on 30 August 2024. Special thanks to our sponsor, Ritech Engineering & Supply Co., Ltd. for supporting this campaign which all participants have had a pleasant time together while competing with their spectacular golf skills at this fabulous venue.

TRAINING

Practical Training Course on Household Air Conditioners using Mildly Flammable Refrigerant

Organized by ACRA, EMSD, and Pro-Act by VTC, two classes of the Practical Training Course on Household Air Conditioners using Mildly Flammable Refrigerant was held on 27 June 2024 and 14 August 2024 respectively. The course includes conceptual lectures on features, relevant OSH legislations, safe handling, assessment, installation, and maintenance of mildly flammable refrigerants in addition to practical sessions to allow industry practitioners to exercise the works of R32 refrigerant properly in a safe manner.



Next Generation Refrigerants Development Class

In consideration of reducing global warming potential for protecting the world along with the latest international enforcement for the associated environmental issues in the HVAC industry, ACRA, EMSD, and VTC have once again hosted the 17th Class on Next Generation Refrigerants Development on 7 August 2024. This course is designed to motivate the industry stakeholders to increase application of the next generation refrigerants in all relevant projects through providing details of efficiency, flammability, handling, and risk management of different refrigerant selections among the attention of sustainability and safety impact.

Training on Installation of Thermal Insulation

According to the government regulation for contractors executing public works on installation of thermal insulation, at least 10% of the provided installation technicians must have qualified certifications in this field from ACRA or other approved organizations. Consequently, ACRA has hosted the 7th class of Training on Installation of Thermal Installation on 25 October 2024 attracting 48 respected technicians to learn about the relevant technical theories and latest practices for pipework and ductwork in details.

Technical Visit to Mesan Cooling Tower Factory



Sustainability is one of the key elements of the current business operation. On 22 June 2024, ACRA has organized a technical visit to Mesan Cooling Tower Factory at Zhongtang Town, Dongguan, China. This was a great opportunity for the participants to acquire the green solutions in evaporative cooling to mitigate the environmental impact with a wide range of sustainable products for energy and water conservation. The next destination was the shopping mall that was awarded the “藍天杯 卓越節能產品獎” at Tianhe, Guangzhou in the afternoon. It is a retrofit project that employs advanced design optimization of group control strategy and variable flow cooling tower to enhance the condenser water supplying temperature in the chilled water system with significant energy saving. It was certainly a treasurable experience for all participated members to acquire the latest green solutions of the HVAC industry.

Technical Visit to Osaka, Japan

ACRA has organized the Technical Visit to Osaka, Japan which was held from 9th to 14th of October 2024. It provided great opportunity for participants to have a better understanding on the most innovative applications of DHC / MVAC technologies in order to attain enhanced sustainability for the civilization by visiting factories overseas.

Hisaka Works Limited



Daikin Technology and Innovation Centre



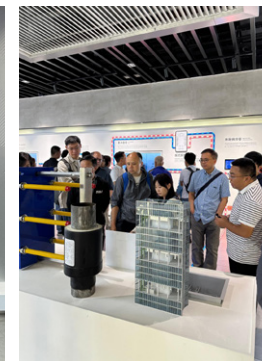
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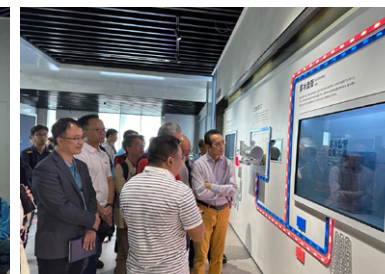


Technical Visit to Great Bay Area



Qianhai

The meticulously orchestrated technical visit to the Great Bay Area on 9th November 2024 unfolded seamlessly, guiding participants on an enlightening journey from the vibrant cityscape of Shenzhen to the industrial hub of Zhongshan. The expedition commenced with an immersive exploration of the cutting-edge operations at Shenzhen Qianhai District Cooling No. 5 Plant, where innovative technologies and sustainable practices converged to shape the future of engineering and manufacturing.



SAIVER WELAIRE

Subsequently, the delegation delved into the intricacies of HVAC systems at a Air Handling Unit supplier, Zhongshan SAIVER WELAIRE Air-Cond. Equip. Co. Ltd. Here, a deep dive into the intricacies of air conditioning solutions illuminated the group on the latest advancements in energy efficiency and indoor climate control.



MECmi Tech

The culminating segment of the visit immersed participants in the realm of modern construction methodologies at MiMEP/DfMA Manufacturer, MECmi Tech 中山偉雅機電科技有限公司. Through interactive sessions and live demonstrations, attendees gained invaluable insights into MiMEP / DfMA techniques, underscoring the transformative potential of prefabrication in the realm of E&M engineering.



Gratitude resonates with all the supporting organizations whose unwavering dedication and collaboration made this enriching experience possible. This successful visit not only broadened horizons but also paved the way for fostering a platform where our members can engage in meaningful technical exchanges, driving innovation and excellence within our industry.

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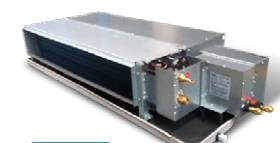
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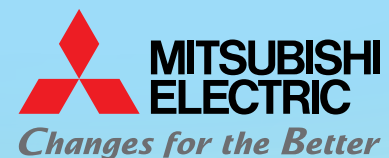
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Youth Committee

On behalf of the ACRA Youth Committee, it is our pleasure to share our works since our last newsletter.

Technical Visit - CMI 5G Hong Kong Workshop

As Artificial Intelligence technology expands across various industries, discussions about its implications and impact on our daily lives have intensified. To explore this topic, with the assistance of Kinger Chu (REC), we organized a workshop on Smart Site Solutions for youth members to learn more about the details in assistance of AI to enhance on-site working productivity and project delivery outcomes.



Technical Visit Guangzhou Technical Trip

Thanks to the arrangement by council members, youth members Rocky Fung (ATAL), Edmond Law (ATAL), Ken Law (Young's) and Ronald Kwong (Fook Loong) participated in a technical visit in June 2024. During this trip, we toured the Mesan Cooling Tower factory to gain insights into green energy-saving solutions and technologies.



Connections with HKFEMC and Other Organizations

As a member of HKFEMC, we participated in various events.



80cc Go Kart Challenge 2024

Over 20 participants enjoyed a day trip to Shenzhen, featuring an exciting Go-Kart experience and a delicious lunch. We appreciate all the sponsorship and support for this event.

Joint Caring Event 2024

In collaboration with HKFEMC, we are actively involved in Happy Bags Delivery to Elderly. Thanks to the sponsorship and support of member companies, we hope to spread our love and care throughout the society.



Upcoming

Looking ahead, we have more enjoyable indoors and outdoors activities planned, including Beer Competition, technical talks, and newly emerging sports activities. Stay tuned for more exciting events!

Understanding and Exploring Generation Z Engineer Potential in the MVAC / HVAC Industry

Generation Z, born between the mid-1990s and the early 2010s, is emerging as a significant influence within the Mechanical, Ventilation, Air Conditioning, and Heating (MVAC/HVAC) sectors. This generation introduces distinct perspectives, competencies, and values that have the potential to greatly impact the industry.

Gen Z Engineers Characteristics

Digital fluency is a defining trait of Generation Z. Having grown up in a technology-driven environment, they possess a high level of proficiency with advanced tools and software, which enhances efficiency in both design and problem-solving processes. Their familiarity with innovation aligns seamlessly with the MVAC/HVAC industry's growing dependence on technologies such as Building Information Modeling (BIM) and Internet of Things (IoT) applications. Many engineering companies today are transforming to incorporate IoT platforms into their daily operations.

Sustainability is another hallmark of Generation Z. Many companies prioritize environmental issues and demand their employers to adopt sustainable practices. Young engineers focus on energy-efficient systems aligns with the industry's transition toward greener solutions, making them valuable contributors to achieve the environmental goals. Many buildings are transitioning to incorporate renewable energy sources.

However, Engineers must navigate regulatory compliance as governments implement stricter emissions and efficiency standards, ensuring their designs align with legal requirements. Also economic constraints can hinder the adoption of advanced technologies due to high initial costs. Engineers must find a balance of innovation and affordability while effectively demonstrating the returns on investment.

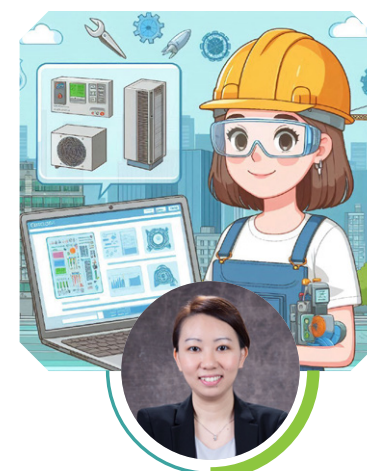


MiMEP Workshop at Kwan Tei Fanling New Territories with Rooftop Solar Panel

Gen Z Engineers Skills

Generation Z engineers often come equipped with strong STEM backgrounds, providing them with essential technical skills. Additionally, they also emphasis soft skills like communication and adaptability, which are crucial for effective collaboration within the MVAC/HVAC sectors. Training initiatives that cultivate both technical and interpersonal skills can produce well-rounded professionals.

CHALLENGES AND OPPORTUNITIES



BELINDA CHU

Member of ACRA Youth Committee
Young's Engineering Company Limited

Despite the strengths that Generation Z brings, there are challenges, such as varying levels of hands-on experiences between young engineers. Establishing mentorship programs can help bridge this gap by pairing young engineers with experienced professionals, thereby facilitating skill development and confidence-building. Furthermore, utilizing tools like cloud-based project management and AI for predictive analytics can significantly enhance collaboration and productivity among engineers.

Creating an inclusive workplace culture is essential for attracting and retaining Gen Z talent. This generation values diversity and anticipates that employers will prioritize inclusivity, which can lead to increased creativity and innovation. In conclusion, recognizing and leveraging the potential of Generation Z engineers in the MVAC/HVAC industry is essential. By nurturing their skills and values, employers can help shape a sustainable and innovative future for the industry.

Gen Z Engineers
Exploring Kai Tai Sports Park





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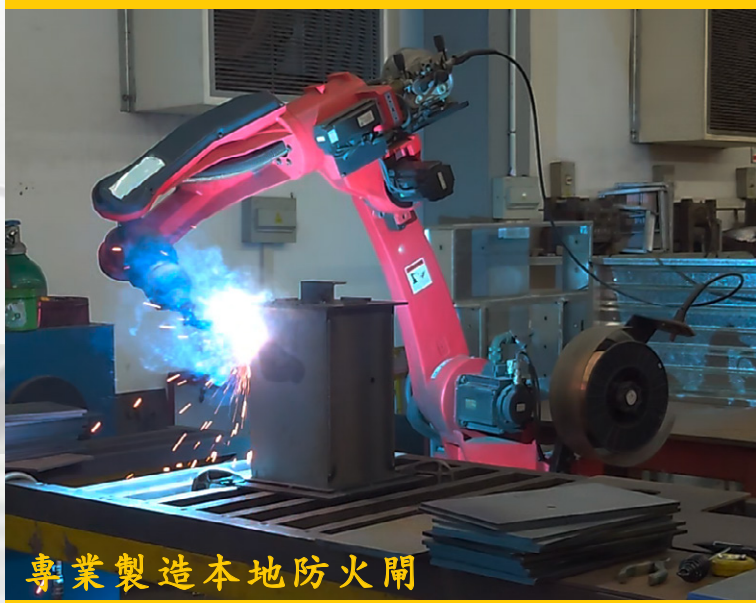


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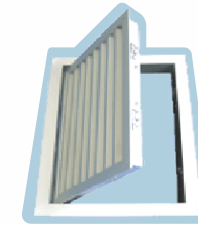
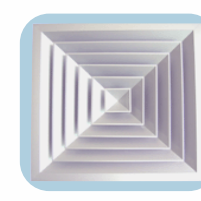
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	Intelligent Technologies Limited	毅智科技發展有限公司	2301 4868	info@intelligent-net.com			

Membership List

ACRA Associate Membes

Company Name		Contact Number	Website / Email	Trade	Contracting	Manufacturing	Servicing	Supplier
JC (HK) Engineering Limited	悅峰工程有限公司	2898 9885	jc.hk.eng@gmail.com	●	●	●		●
Jetford Engineering & Trading Company Limited	捷科工程有限公司	3101 2323	www.jetford.com.hk	●		●		●
J & J Network Engineering Company Limited	信卓網絡工程有限公司	3579 5263	www.jjnetwork.com.hk					●
Johnson Controls-Hitachi Air Conditioning Trading (Hong Kong) Limited	江森自控日立空調貿易(香港)有限公司	2590 0012	www.jci-hitachi.com		●			●
Joneson Environmental Technologies Limited	忠誠環保科技有限公司	2889 8220	ElvisChan@fsenv.com.hk	●	●	●		●
Join Rich Engineering Limited	億聯工程有限公司	3153 2048	www.joinrich.com.hk	●				
Jinchat Engineering (HK) Company Limited	正卓工程(香港)有限公司	2687 1755	joey.kong@jinchat.com		●	●		●
Jun Feng Company Limited	駿峯有限公司	2707 3088	www.junfeng.com.hk			●		●
Kamui Cold Chain Engineering & Service Limited	淦鎧冷鏈工程服務有限公司	2554 6666	admin@kamui.hk	●		●		
Keio Engineering Company Limited	京王工程有限公司	2695 8872	www.keio.com.hk	●				
Kembla (Hong Kong) Limited	金特霸(香港)有限公司	2528 0999	www.kembla.com.hk					●
K-flex (Hong Kong) Insulation Company Limited	凱門(香港)保溫材料有限公司	2668 5202	www.k-flex.com		●			
Kin Wo A/C Engineering Limited	健和冷氣工程有限公司	2398 0157	kw@kinwo.com.hk	●				
Kinetics Noise Control (Asia) Limited	建力聲震控制(亞洲)有限公司	2191 2488	www.kineticsnoise.com		●			●
Kings View Airconditioning Engineering Company Limited	景匯空調工程維修有限公司	2796 2417	stephenchau@kingsview.com.hk	●				
Kitz Hong Kong Company Limited	香港開滋有限公司	2728 2199	www.kitz.co.jp		●			●
KSB Limited	凱士比有限公司	2147 1226	www.ksb.com		●			
K.Y.H. Steel Company Limited	金源行鐵倉有限公司	3473 2332	www.kyh.com.hk					●
Laser Resources (Asia) Company Limited	全美(亞洲)有限公司	2516 7500	laasiahh@netvigator.com		●			●
Lap Kei Engineering Company Limited	立基冷氣工程有限公司	2798 8210	www.lapkeieng.com	●		●		
LeBlanc Water Treatment & Chemicals Limited	利邦化工水處理有限公司	2408 2000	www.leblanc.com.hk				●	
Lee Tack Engineering Company Limited	李德工程有限公司	2305 3111	ltec@leetack.com.hk	●				
Lee Yip Metal Products Company Limited	利業金屬有限公司	3651 2698	www.leekeegroup.com					●
Legend Engineering Company Limited	卓越聲控工程有限公司	2815 0928	info@legendjt.com.hk	●	●			●
Lifa Air Limited	麗風空氣有限公司	2511 7028	www.lifa-air.com			●		●
Link The Best Company Limited	必發(香港)有限公司	2568 4092	www.linkthebest.com.hk		●			●
Luen Fat Air Condition (Holding) Trading & Engineering Company Limited	聯發冷氣(集團)貿易工程有限公司	2345 0280	www.luenfat.com					●
Luen Ming E & M Engineering Limited	聯明機電工程有限公司	2636 7168	phyllischan@luenmingem.hk	●				
Luen Ming Pengshan Air Conditioning Factory Limited	聯明坪山冷氣製品廠有限公司	2797 2168	www.luenming.com					●
Man Tung Air-Conditioning E & M Limited	萬通冷氣機電有限公司	3165 8698	www.manshungroup.com.hk	●				
Mason Industries (HK) Limited	梅森實業有限公司	2967 9639	www.mason-hk.com					●
Maxwell Electrical Asia Limited	美基電器亞洲有限公司	3583 5088	www.maxwell-asia.com		●	●		
Mesan Fiberglass Engineering (International) Limited	明新玻璃纖維工程(國際)有限公司	2787 5717	www.mesanct.com		●			
Mitsubishi Electric (Hong Kong) Limited	三菱電機(香港)有限公司	2510 0555	www.mitsubishielectric.com.hk					●
Mitsubishi Heavy Industries (HK) Limited	三菱重工業(香港)有限公司	3526 3186	www.mhii-ac.com		●			
NAP Acoustics (Far East) Limited	NAP 聲學工程(遠東)有限公司	2866 2886	www.napacoustics.com.hk	●	●	●		●
Nanofil Filtration Technology Limited		3708 1838	www.nanofil.com.hk		●			
Nation Engineering Company	力信工程公司	2728 2955	info@nec-hk.com	●	●	●		●
New Way Engineering Company Limited	新法機械有限公司	2325 6892	www.newway.com.hk					●
O-Link Limited	奧聯(國際)有限公司	2619 8888	www.o-link.com.hk		●			
Oxprime (International) Limited	鑫輝(國際)有限公司	2590 8088	info@oxprime.com					●
Paul Y. (E & M) Contractors Limited	保華機電工程有限公司	2831 8338	www.pyengineering.com	●				
Pekko Engineers Limited	柏高工程有限公司	3973 0698	www.leightonasia.com	●				
Power Tech IPC Company Limited	科力發展有限公司	3105 3928	www.powertechipc.com			●		●
Powers Technical Services Limited	寶華技術服務有限公司	2770 2110	sosaitung@gmail.com	●				
Practical Engineering (Hong Kong) Company Limited	百利高工程(香港)有限公司	2402 2772	practical@practical.hk	●				●
Precision Engineering Services Limited	惠確工程服務有限公司	3656 7777	www.wec.com.hk			●		
Pyrofoe Engineers Limited	衛安工程有限公司	2388 8038	www.pyrofoe.com.hk	●				
Ready Electrical Metal Work Limited	全達電器金屬製品有限公司	2898 8623	kw_leung@ready-group.com	●	●			
REC Green Technologies Company Limited	盈電環保科技有限公司	2619 8817	www.rec-gt.com			●		●
Ritech Engineering & Supply Company Limited	偉達工程材料有限公司	2410 1819	www.ritech-hk.com					●
San Yik Air Conditioning Engineering Company Limited	新益冷氣工程有限公司	3565 5812	www.sanyikgroup.com	●		●		●
Sanby Trading Company Limited	聖備貿易有限公司	2573 4219	www.sanby.com					●
Samsung Electronics H.K. Company Limited	三星電子香港有限公司	2862 6300	www.samsung.com.hk		●			
Satchison Engineering Limited	長和工程有限公司	2357 9382	joey@satchison.com.hk					●
Shenling Environmental Systems (Hong Kong) Limited	申菱環境系統(香港)有限公司	2603 0002	www.shenling.com					●
Shenzhen Qianhai Energy Technology Development Company Limited	深圳市前海能源科技發展有限公司	5578 1902	www.szqhenergy.com			●		

Membership List

ACRA Associate Membes

Company Name		Contact Number	Website / Email	Trade	Contracting	Manufacturing	Servicing	Supplier
Shun Hing E & M Engineering Limited	順興機電工程有限公司	2387 2882	project@shunhingeng.com	●				●
Shun Hing Electronic Trading Company Limited	信興電器貿易有限公司	2733 3888	www.shunhinggroup.com	●				●
Shun Hing Electric Service Centre Limited	信興電器服務中心有限公司	2406 5333	www.shunhing-service.com			●		
Shun Tung Engineering Company Limited	順通冷氣電機工程有限公司	2633 6866	info@shun-tung.com	●				
Sing Kin Limited	陸建有限公司	2333 1518	singkin@gmail.com	●				
Smartech HVAC & Engineering Limited	智能空調工程有限公司	2521 9768	info@smartech-hvac.com.hk					●
Sun Chun (E & M) Engineering Limited	新駿(機電)工程有限公司	3613 0755	info@sunchuneng.com	●				
Sun First International Limited	昇福國際有限公司	2807 7888	www.sunfirst.com.hk					●
Sun Yu Chau Engineering Company Limited	新宇宙工程有限公司	2345 9355	www.sycengg.com.hk	●				
Sunny Fire Engineering Limited	華輝建材有限公司	2395 6766	neweverwelltd@gmail.com	●				
Sun Ying Prefab Products Limited	新鷹預製件有限公司	2547 7877	www.sunying.com.hk		●	●		●
Superpower Pumping Engineering Company Limited	力霸水泵機械工程有限公司	2745 3562	www.sppump.com					●
Tak Cheong Air-Con. Equipment Supply Company Limited	德昌冷氣設備供應有限公司	2310 0011	www.tcaircon.hk			●		●
Sustainable Energy Limited	恆澤節能有限公司	2332 3077	www.sustaine.com.hk		●	●		
Target Energy Solutions Limited	達標能源管理有限公司	2345 0298	www.targetensol.com			●		
Teembase Development Limited	天基發展有限公司	2554 6263	www.teembase.com					●
The Hong Kong & China Gas Company Limited	香港中華煤氣有限公司	2963 3452	www.towngas.com					●
Tinwood Pacific Limited	天匯太平洋有限公司	3956 9751	www.sinro.com		●			
Tom's Equipment Company Limited	義隆設備有限公司	2757 5539	ray@toms-equipment.com					●
TICA-SMARDT Hong Kong Limited	天加思茂特香港有限公司	2772 8448	ben.leung@smardt.com					●
Tin Sing Chemical Engineers Limited	天成化工有限公司	2619 8858	www.rec-tsc.com			●		●
TROX Hong Kong Limited	妥思香港有限公司	2861 2261	www.troxapo.com					●
Tung Shing Hardware Company Limited	東成五金有限公司	2626 9983	www.tungshinghardware.com.hk					●
Union (Luen Hop) Refrigeration Company Limited	聯合冷氣工程有限公司	2627-4600	wylam@unionhk.hk	●				
United Controls (Hong Kong) Limited	統一儀器(香港)有限公司	2556 1001	www.ucl668.com			●		●
Victaulic Hong Kong Limited		6898 6823	www.victaulic.com		●	●		●
Victory Engineering Service Company Limited	維陞工程有限公司	2979 4068	pamela@ves.hk					●
Viewco Building Services & Engineering Company Limited	偉保工程有限公司	2543 0610	engineering@viewco.com.hk	●				
White Hippo Limited	白河馬企業有限公司	2303 1318	www.kshop310.hk					●
Wilco Engineering Limited	駿陶工程有限公司	2344 7725	info@wilcoenghk.com	●				
Wing Shing Air-Flow Company Limited	永盛風咀製品廠有限公司	2792 6331	margaret.leung@wingshing-hvac.com		●			●
WinTech Century Company Limited	宏達世紀有限公司	2760 4883	www.tanda.info	●	●	●		●
Wise Corporate (Hong Kong) Limited	匯思集團(香港)有限公司	3705 8947	ErnestL@wisecohk.com	●				
Wo Lee Steel Company	和利鋼鐵有限公司	2393 0131	www.wolee.com					●
Wo Kee Hong Limited	和記電業有限公司	2514 4700	www.wokeehong.com.hk	●		●		●
Wolter Asia Limited	華德亞洲有限公司	2456 0198	info@wolter.com.hk		●			●
Wysermann Company Limited	威士文有限公司	2614 2213	wysermann@wysermann.com.hk					●
Yin On Trading Limited	寶安建材貿易有限公司	2572 7110	office@yinon.com.hk	●		●		
Ying Fung (HK) Engineering Limited	盈豐(香港)工程有限公司	2690 0121	skchung@yingfung-corp.com.hk	●		●		
Yordland Engineering Limited	日島工程有限公司	2362 2186	www.yordland.com	●		●		●
York Choi Industrial Limited	旭彩實業有限公司	2795 8286	www.yorkchoi.com		●			
Yuen Fong Air-Condition Products (HK) Limited	圓方空調設備製品(香港)有限公司	2880 5880	yuenfongaircondition@hotmail.com					●
Zenith International Enterprise Limited	盛豐國際企業有限公司	2815 5852	www.ebara.com.hk					●

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fit for VARIOUS design environment / purpose

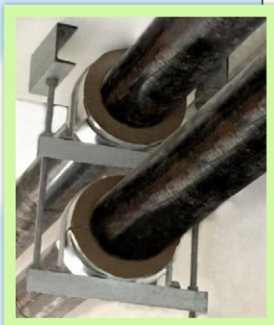
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Aluminium bright / Black matt / White antiglare & etc...

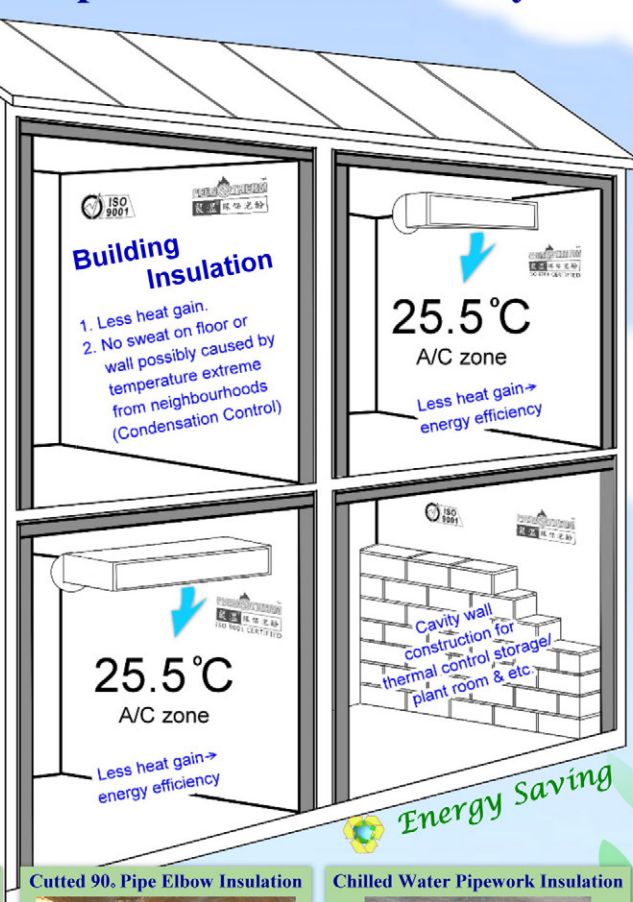


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- Load-Bearing Insulation
- Fit for Various Insulation
- Perfect the Whole Insulation System



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Efficient



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Cutted 90° Pipe Elbow Insulation



Chilled Water Pipework Insulation



SOLE AGENT/STOCKIST :

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Email : flhk@flhk.com.hk ☎ 2393-7773
www.flhk.com.hk FAX : (852) 2390-6377

2007
Nina Tower



2017 MTR Express Rail Link,
West Kowloon Terminus



2015 Fire and Ambulance
Services Academy



2020 Liantang / Heung Yuen Wai
Boundary Control Point



2023 Hong Kong Palace Museum,
West Kowloon Cultural District



2022 East Kowloon
Cultural Centre



2024 * Major Job Reference
Jockey Club Campus of Creativity,
Hong Kong Baptist University



1996 Court of Final Appeal,
Central



1994 General Cancer Centre,
Prince of Wales Hospital



1998 International Financial Centre
Phase I (IFC-I)



2013 Central Mail Centre



2018 Passenger Clearance Building,
Hong Kong Boundary Crossing Facilities,
Hong Kong-Zhuhai-Macao Bridge



2021 ESF Island School



2025 onward...