



The showcase of Application of Fresh Air Unit (FAU.)

Wilson Ip 葉濠銘
Engineering Director
Kins Engineering Ltd.

Email: wilsonip@kinsengine.com

Phone: +852 2498 8829



「肺，為水之上源」

節錄自《素問·經脈別論》

Fresh **Air**

is vital to life



Fresh Air Unit (FAU.)

FOR GREEN & FOR GOOD



Numerous successful cases



Secret lies in:



TAL Apparel - HK Headquarters
LEED platinum

- ✓ Positive Pressurizing by Fresh Air
Air Exchange (ACH)
- ✓ Air Quality Controlling
CO₂, PM_{2.5}, NO_x
- ✓ Comfort Region Application
Best mix between Temperature & Humidity



Conventional A/C



Indoor
60-80%RH
 $22 \pm 1 \text{ }^\circ\text{C}$



Feature	Effect
No air pressure	Uncontrollable infiltration
No air change	Unable to expel contaminants
Cooling-oriented	Humidity-prone



FAU



Feature	Effect
Positive air pressure	Keep out contaminants
Air change with fresh air	Guaranteed circulation
Dry and cooled clean air	Better comfort, Less Bios



FAU Advantages

Air Quality

- Pollutant free (contaminant & pathogen)
- Positive air pressure protection

NO_x <50%
PM2.5 <60-80%
CO2 <700ppm



由於我們想加大抽濕效能
所以我們的銅管排列更多

(TVB interview, 2020)

Human Comfort

- Cool air **but humidity-focused** (<65%)
- Guaranteed air circulation (> 6 ACH)

Energy-saving & Advantages

- Reduce electricity cost (save 35%)
- Less maintenance
- Able to retrofit with A/C

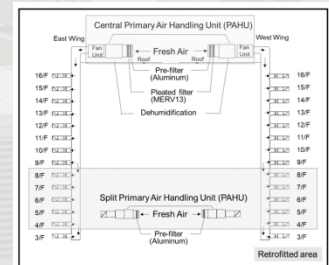


Fig. 2 The ventilation and filtration system in the retrofit project

Energy consumption, indoor thermal comfort and air quality in a commercial office with retrofitted ventilation and filtration

Wen Wei Che,^{1,2} Chi Yan Tso,³ Li Sun,⁴ Danny Ip,⁵ Harry Lee,⁶ Christopher Y. H. Chao,⁷
Alexis K.H. Lau^{1,4,*}

(HKUST research study)



Capstone and Challenges

JTIA heritage



CUHK Woo Sing College



LCCS Primary School



[Video Link](#)

Humidity
Settled (60%)

Total Saving
30 ±10%

CO2 ↓ 28%
PM2.5 ↓ 18%

MESSAGE FOR HK



- Dare to Changes
 - Habit & thinking



- Dare to Innovate
 - New approaches
 - New appliances



- Dare to Create
 - Research and Develop



Thank you for your attention.

END



References

- Energy consumption, indoor thermal comfort and air quality in a commercial office with retrofitted ventilation and filtration (2020) Che Wen Wei, et al.
- Heat Transfer by J.P. Holman
- Thermodynamics: An Engineering Approach by Yunus A. Cengel and Micheal A. Boles
- Fundamentals of Engineering Thermodynamics by Michael J. Moran and Howard N. Shapiro
- Air Conditioning Engineering by W. P. Jones
- Refrigeration and Air conditioning By C P Arora
- Heat and Mass Transfer By Frank P ,David P. Dewitt
- Heating, Ventilating, and Air Conditioning By Mcquiston

Special thanks to:

Professor Harry Lee, JP for his special guidance and support.

