

SAFETY  
安全HIGH EFFICIENCY  
高效DURABLE  
耐用GREEN  
環保PRECISE CONTROL  
精準控制AUTOMATION  
自動化

辦公室

煤氣抽濕機

## 企業簡介

香港中華煤氣有限公司作為主要的能源供應商，在總部大樓採用了多項先進的節能科技及實行優良的環保物業管理方案，以達到減少環境影響的最終目標，並成為香港首座非住宅大廈獲得香港綠色建築議會頒發綠建環評既有建築（1.2版）最終鉑金級認證。



**煤氣**  
**Towngas**

## 改善辦公室室內空氣質素 提高員工舒適度



### 精準控制



**24°C**  
設定溫度



**65%**  
設定濕度

### 樓面面積



**1,316** 平方米

### 安裝設備



**1** 台 煤氣抽濕機

## 室內空氣質素對員工生產力的重要性

自七十年代後期的經濟轉型，現時大部分人長時間在室內工作，公眾日趨關注良好的室內空氣質素對社會和經濟的影響。研究指出惡劣室內環境可導致「病態樓宇綜合症」，並令到生產力受阻。反之，良好的室內空氣質素可以保障員工的健康，從而令他們感到舒適和保持良好健康。

為改善室內空氣質素，煤氣公司就空調辦公室的供暖通風及空調系統設定最理想溫度及相對濕度，並於總部大樓應用煤氣抽濕機。監測結果顯示，煤氣公司總部達到<<辦公室及公眾場所室內空氣質素檢定計劃>>的良好級水平。



煤氣公司以實現綠建環評鉑金級為目標，持續監察各項改善工程及環境管理計劃的進度和效能



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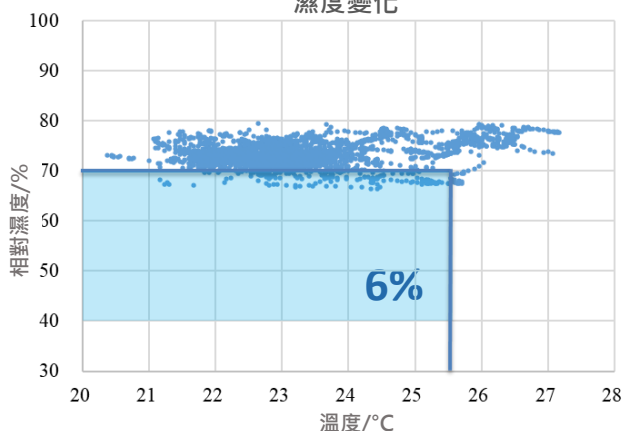
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## 研究發現: 有效將室內溫濕度控制至舒適水平

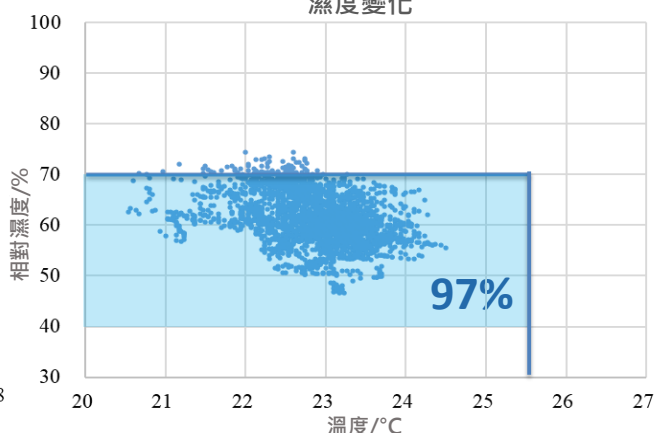
在2019年，煤氣公司委託香港城市大學於煤氣公司總部大樓安裝煤氣抽濕機對室內溫濕度的影響。研究指出，在使用煤氣抽濕機後，室內濕度持續保持於70%內，表示煤氣抽濕機在長時間有效將室內空氣質素調節至指定水平。

溫度舒適區  
室內溫度: 20-25.5 °C  
相對濕度: 40-70%

未有安裝煤氣抽濕機樓層的溫濕度變化



裝有煤氣抽濕機樓層的溫濕度變化



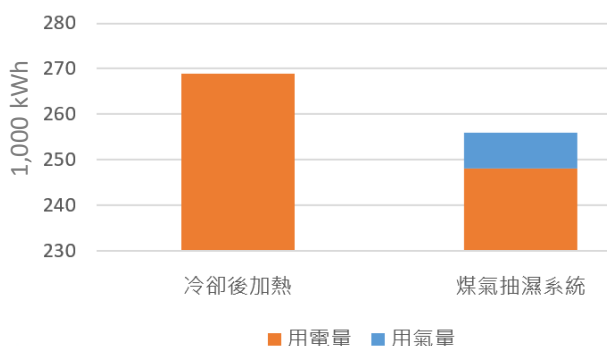
香港城市大學能源及環境系於2019年在煤氣公司總部大樓進行為期一個月研究，圖表指出安裝煤氣抽濕機後，符合對「溫度舒適區」濕度要求的比率由6%提升至97%

## 減低空調系統能源消耗

傳統的空調系統透過冷凝空氣至所需的水分含量再加熱以控制室內溫濕度。然而煤氣抽濕系統是直接去除空氣中的水分，因而不需要依靠空調系統來調節濕度，大大減低鮮風櫃的負荷，並有效減低空調系統的能源消耗，從而減少碳排放。

煤氣公司積極採用先進的節能科技，在改善員工的工作環境與提高能源效率之間取得平衡，達到保護環境的最終目標。

空調系統的年度能源消耗



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Office

Dehumidification

## Headquarters of The Hong Kong & China Gas Co. Ltd.

As a leading energy provider, Towngas has achieved numerous building sustainability objectives by adopting advanced energy efficiency technologies as well as best practices on facilities management. Its committed efforts have made it the first non-residential building in Hong Kong to achieve Platinum Rating of Final Assessment under BEAM Plus Existing Buildings Version 1.2.



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## Improving office IAQ to boost performance



### Precise Control



24°C

Design  
Temperature

6%

Design  
Humidity

### Floor Area

1,316 m<sup>2</sup>

### Equipment



1 desiccant dehumidifier

## Importance of IAQ to Staff Productivity

As a result of economic transformation since the late 1970s, the majority of the workforce now works indoors, increasing the socioeconomic importance of indoor air quality (IAQ). Research has shown poor indoor environment to cause Sick Building Syndrome, jeopardising productivity. Thus, improving IAQ helps safeguard staff health and enhance productivity.

To improve IAQ, Towngas strictly follows heating, ventilation and air-conditioning (HVAC) system guidelines to achieve optimum temperature and relative humidity for office occupants. This is in turn enhanced by the desiccant dehumidifier. Results from continuous monitoring have shown IAQ at Towngas headquarters to meet the criteria of Good Class under the IAQ Certification Scheme for Offices and Public Places.



To achieve BEAM Plus targets, continuous monitoring is carried out for various improvement projects and Environmental Management Plan



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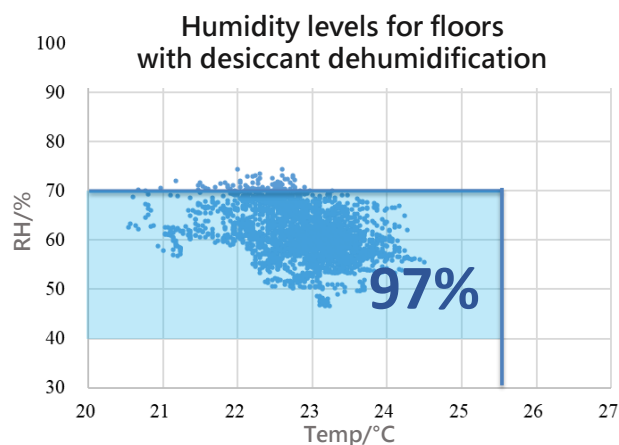
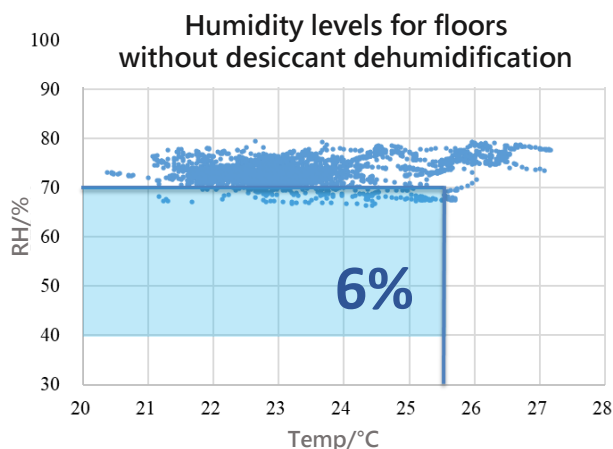
PRECISE CONTROL  
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## Proven Success of Controlling Humidity within Comfort Level

In 2019, Towngas cooperated with the City University of Hong Kong to conduct research at Towngas headquarters to measure the impact of desiccant dehumidification on humidity. The study revealed significant improvements in indoor humidity levels after the installation of desiccant dehumidifier, indicating that it is an effective solution to achieve high IAQ and maintain an ideal comfort level.



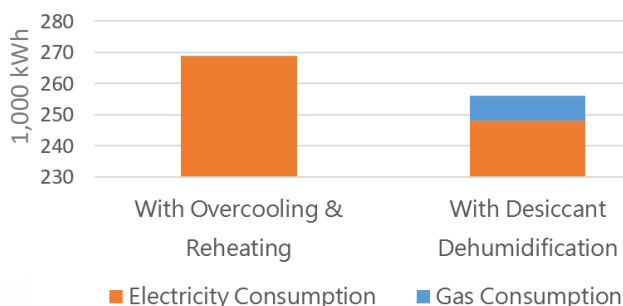
City University of Hong Kong School of Energy and Environment conducted research at Towngas' headquarters in 2019, which indicated a difference in temperature and humidity on floors in the presence and absence of the desiccant dehumidifier.

## Reducing HVAC System Energy Consumption

A conventional HVAC system condenses out moisture to reach the desired moisture content level before reheating the air to reach the desired temperature. A desiccant dehumidification system removes moisture directly, without relying on the chiller for humidity control. Thus, the desiccant system greatly reduces the load on the primary air-handling unit and brings about energy savings while reducing carbon emissions.

One of Towngas' main goals is to strike a balance between quality of life improvement and energy efficiency. The desiccant dehumidifier is a perfect example of the effective achievement of this goal.

### Annual Energy Consumption for each HVAC System



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