December 2023

Customer Success Story

Chinachem Adopts Trane® Air-Fi® Wireless Innovation & Technology Solution for Enhanced Energy Efficiency and Thermal Comfort in Nina Tower Offices

I. Project Overview

Nina Tower

Chinachem Group has been one of the largest property developers in Hong Kong since the mid-1970s. As a leader in the industry, Chinachem Group is known for its commitment to energy efficiency and occupant comfort in its residential, commercial, and industrial buildings.

In the case of Nina Tower – a world-class twin tower of 89-storey and 42-storey high-rise commercial buildings in Tsuen Wan, Chinachem aimed to reduce environmental impact while providing comfortable and healthy indoor spaces for occupants.

Therefore, Chinachem partnered with **Trane Hong Kong** to apply an innovation & technology solution – Trane® Air-Fi® wireless communication and control to its underfloor air-conditioning system in Nina Tower offices, integrating wireless controls, digitized operation, internet of things strategies, and innovative data analytical approaches across the design, construction, and retro-commissioning phases. This made Chinachem the first leading local developer to implement such an innovative solution.

II. The Challenge

The major challenge of retrofitting Nina Tower was adhering to a tight installation, testing, and retro-commissioning schedule. The previous underfloor cooling system, or so-called floor tile units (FTUs), had several issues to be solved, including the uneven distribution of zone temperatures and inadequate fan speed controls which couldn't satisfy the comfort requirements of the occupants.

Thus, Trane was expected to help Chinachem balance comfort and energy efficiency by installing a total of more than 400 new FTUs (dimensions: 600mm x 600mm) on four floors and adopting a remote, centralized FTU control and monitoring system using innovative technologies.

III. Trane's Solution

The core of Trane's solution is a Tracer® Air-Fi® Wireless System, which utilizes self-healing mesh technology to prevent communication loss and eliminate the risks associated with wired networks. This ensures easier, flexible, and reliable building controls, efficient performance, and cost savings. The system offers twice the signal range and four times the number of potential paths compared with other wireless systems, helping to maintain communication even when signals are obstructed.

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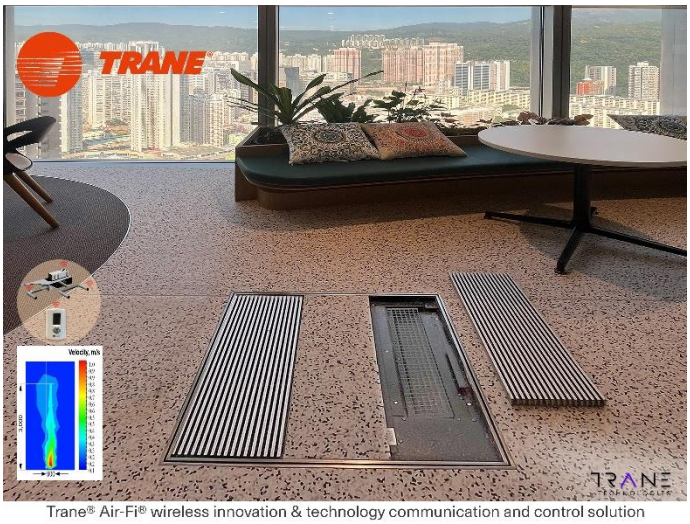
Besides, the new FTUs are equipped with Trane's programmable Tracer® Air-Fi® controllers to provide accurate and optimal supply air temperatures. Real-time data can be collected with Trane's powerful Tracer® SC+ Building Automation System, to meet engineers' daily operation and maintenance needs. Trane also made it easy and hassle-free for engineers to monitor, troubleshoot, and clean the new FTUs, and relocate them in case of renovations in the future.



Trane® Air-Fi® wireless innovation & technology communication and control solution

Furthermore, other innovative technologies adopted by Trane in the project encompassed cutting-edge computational fluid dynamics (CFD) analytical modelling, electronically commutated (EC) fans enabling variable fan speed controls, and precise control of air distribution velocity in compliance with the latest comfort standards to best meet the thermal comfort needs of the occupants.

IV. Key Outcomes

From Strategy to execution, Trane's comprehensive Air-Fi® wireless innovation and technology control solution has successfully helped Chinachem achieve excellent results in energy optimization, system reliability, and thermal comfort, boosting the overall occupant experience with premier indoor environmental quality (IEQ) and worry-free operation. Here are the key indicators:

- **Accelerated Project Delivery**: Installation time reduced by over 50% without wiring
- **Enhanced Energy Efficiency**: Achieved a reduction of 30% in power consumption
- **Excellent Indoor Air Quality (IAQ)**: Certified as "Excellent Class" by the Environmental Protection Department (EPD), meeting their stringent requirements for IAQ ratings
- **Increased Thermal Comfort**: Complied with the ASHRAE Standard 55 for buildings

"We are very impressed by Trane's Air-Fi® Wireless Mesh Network Solution, which has helped us achieve remarkable power-saving effects, and significantly enhanced the air quality and comfort in our Nina Tower offices," said Mr. David Chau, Senior Building Services Manager of Chinachem Group. "With their professionalism and expertise, Trane has also provided us with valuable insights during the project planning stage to successfully optimize our building's overall performance."

Trane has demonstrated a strong commitment to continuous innovation and sustainability in this project, which perfectly aligns with Chinachem's dedication to balancing its three fundamental principles of "People, Prosperity, and Planet". Trane's focus on energy efficiency, mitigating environmental impact, and adopting sustainable practices has played a vital role in fostering a shared vision and solidifying a mutually beneficial win-win partnership between Chinachem and Trane.

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客戶成功故事

華懋採用特靈®Air-Fi®無線創新科技解決方案

提升如心廣場辦公室的能源效益與熱舒適度

I. 項目概述


如心廣場

華懋集團自 1970 年代中期以來一直是香港最大的地產發展商之一。作為業界的領導者，華懋集團致力提升住宅、商業及工業樓宇的能源效益及用戶舒適度。

以位於荃灣兩座分別為 89 層和 42 層高的商業大樓所組成的世界級雙塔建築——如心廣場為例，華懋在為樓宇使用者提供舒適、健康的室內空間的同時，亦竭力減少對環境的影響。

為此，華懋與特靈香港合作，將特靈®Air-Fi®無線創新科技通訊及控制方案應用於如心廣場辦公樓的地下中央空調系統。該方案涉及全面運用無線控制、數碼化操作、物聯網策略及創新的數據分析方法於設計、施工及重新校驗的各階段。華懋成為本港首家為地下中央空調系統實施此創新解決方案的領先地產發展商。

II. 迎接挑戰

翻新如心廣場的主要挑戰是安裝、測試及重新校驗的時間緊迫。早前安裝的地下空調系統存在若干問題有待解決，包括區域溫度分布不均及風扇速度控制不足以滿足樓宇使用者對舒適度的要求。

因此，特靈需要在四個辦公樓層安裝合共 400 多台全新的 FTU（尺寸：600mm x 600mm），並採用融合創新科技的遠端集中式 FTU 監控系統，以協助華懋在舒適度與能源效益之間取得平衡。

III. 特靈方案

特靈解決方案以 Tracer® Air-Fi®無線系統為核心，該系統採用自癒式網狀網路（Mesh Network）技術以防止通訊丟失，避免了與有線網路相關的風險。此舉不但令樓宇控制更加簡便、靈活可靠，而且能夠實現高效性能及節省成本。該無線系統的訊號覆蓋範圍及潛在路徑數量分別是其他無線系統的兩倍及四倍，即使在訊號受阻的情況下也能保持通訊。

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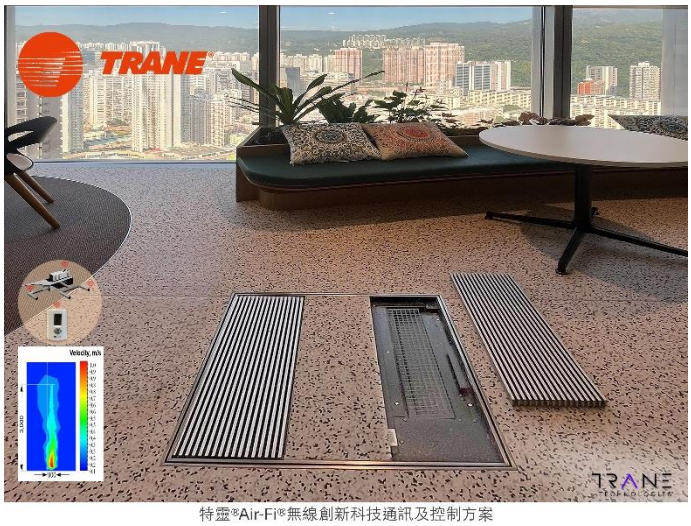
另外，新安裝的 FTU 配備特靈可程式化 Tracer® Air-Fi®控制器，以提供精準及最佳的送風溫度。特靈強大的 Tracer® SC+樓宇自動化系統能夠即時收集數據，以滿足工程師日常操作與運維上的需要。特靈亦確保工程師能輕鬆無憂地應對新 FTU 系統的監控、故障排除和清潔，以及日後辦公大樓可能裝修時的搬遷工作。



特靈®Air-Fi®無線創新科技通訊及控制方案

除此之外，特靈在項目中還採用一系列創新科技，包括尖端的計算流體力學（CFD）分析建模、實現可變風扇速度控制的電子整流（EC）風扇，以及符合最新舒適度標準的空氣分配速度精確控制，以盡最大可能滿足辦公大樓使用者對熱舒適度的需求。

IV. 主要成果

從策劃到執行，特靈 Air-Fi®無線創科解決方案成功幫助華懋在能源優化、系統可靠性及熱舒適度方面取得優異成果，以卓越的室內環境品質及無憂營運提升整體用戶體驗。主要指標如下：

- **加速項目交付**： 無需布線，令安裝時間縮短 50%以上
- **提高能源效益**： 電能消耗與項目實施前相比降低了 30%
- **優化空氣質素**： 通過環境保護署嚴格的室內空氣質素評級規定，獲認證為「卓越級」
- **提升熱舒適度**： 符合適用於建築物的《美國採暖、製冷與空調工程師學會標準 55》

華懋集團的高級屋宇設備經理周大偉先生表示：「特靈 Air-Fi®無線網狀網路解決方案的成效令我們非常滿意，特靈在為如心廣場辦公大樓帶來顯著節能效果的同時提升了空氣質素與舒適度。特靈團隊亦憑藉其專業精神及知識，在項目策劃階段為我們提供寶貴的意見，成功優化了建築物的整體性能。」

該項目體現特靈恪守其對不斷創新及可持續發展的承諾，這與華懋集團有關「人（People）、繁榮（Prosperity）、環境（Planet）」三重基線並重的理念完美契合。特靈對能源效益、環境影響及可持續發展實踐的關注推動公司與華懋實現共同願景，並有助鞏固與華懋之間的互利雙贏合作夥伴關係。

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