

CASE STUDY | Wei Lai Mansion



Armstrong Design Envelope pumps were selected to retrofit this 80,000 m² office and hotel complex. Because the HVAC system is required 24/7 to support hotel operations, ease of installation and minimal labour were important considerations. Armstrong upgraded the existing equipment with 10 Design Envelope 4300 pumps and an IPC 9521 controller.

Armstrong solutions reduced energy usage by 75%. These energy savings reduced the payback period for the retrofit project to less than two years.



FACILITY TYPE
Hotel and office complex



LOCATION
Zhengzhou, China



SIZE
80,000 m²

SITE CHALLENGES

- Low tolerance for noise and vibration
- 24/7 hotel operations demanded fast installation and commissioning for minimal system downtime



ANNUAL ENERGY COST

| BEFORE | AFTER |
|-----------------------|-----------------------|
| RMB 298,030 | RMB 104,626 |
| AVERAGE | AVERAGE |

ANNUAL COST SAVINGS

RMB
193,404



CO₂ EMISSIONS

| BEFORE | AFTER |
|--------------------------------------|-------------------------------------|
| 283,647 kg CO ₂ | 71,195 kg CO ₂ |
| AVERAGE | AVERAGE |

ANNUAL CO₂ EMISSION REDUCTION

212,452 kg CO₂

TO GET YOUR ENERGY UPGRADE PROJECT STARTED, CALL:

+1 866 238 1337



ANNUAL ENERGY SAVINGS

BUREAU VERITAS VERIFIED

75%



KEY OUTCOMES:

- ✓ Bureau Veritas reviewed the energy usage data and certified the efficiency improvement of 75%
- ✓ The cost savings will be RMB 193,404 per year (approx \$28,000 USD)

Site specification 80,000 m² office and hotel constructed in 1997

Equipment included 10 × Design Envelope Vertical In-Line 4300 pump with Suction Guide and Flo-Trex valve



Bureau Veritas S. A. is an international certification agency appointed by Armstrong to provide a technical assessment of pump performance and energy usage.



SOLUTIONS EMPLOYED

DESIGN ENVELOPE

VERTICAL IN-LINE PUMP

IPC 9511

Armstrong maps each individual pump's hydraulic, motor and inverter variations at the factory to achieve exceptional accuracy throughout the flow range. With this calibration, Armstrong Design Envelope pumps also serve as

flow meters, providing reliable system flow data (+/- 5%). The testing ensures optimal performance efficiency at start-up, while Armstrong's Pump Manager helps maintain and extend efficiency throughout the pump's operating life.