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annexAir
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Case Study

HVAC Solutions | Education | Healthcare | Natatorium | Data Center | Grow-Ops

Biotechnology Company - San-Francisco, CA

Retrofit pharmaceutical project in San Francisco Bay featuring new Annexair Thermo-Composite Units

CHALLENGE

The company featured in this case study is a Large Biotechnology company located in the southern part of San Francisco. It is specialized in the discovery, development, manufacturing and commercialization of medicines. With many buildings along the coast, the company was forced to replace all their units every decade because of the high level of salt in the air, which created rust on the units. Indeed, the accumulation of salt rapidly brought about corrosion within the construction. This considerably decreased service life after only a couple of years. Research for higher quality units with improved corrosion resistance became a key decision factor for the company.

The main challenge of the project was to provide multiple-unit construction with a higher resistance to corrosion to extend the lifespan of the units, conserve weight, maintain high-performance data and engineering for energy recovery, produce cooling, and provide high-quality air. Annexair, a leading company focused exclusively on designing and manufacturing high-quality, energy-efficient air-handling systems, found the perfect solution for this challenge.

ECO PRODUCT

GREEN WORLD go green enterprise

SOLUTION

As usual for all shipments, units arrived with a plastic cover (shrink-wrapped) at job site.

For this project, Annexair provided 4 Energy Recovery Thermo-Composite Units, a revolutionary product in the HVAC industry for its numerous advantages, such as its superior resistance to corrosion. In fact, the Thermo-Composite panels are finished with a superior PVDF 3000-hour salt spray to resist any form of corrosion, even when the unit is exposed to a high volume of sea salt air. The panel also includes a wipe down construction to avoid the internal mould and mildew usually seen on units close to the seashore. The frame has a true thermal-break frame and panel assembly making it a ''No Sweat Condensation" casing. The Thermo-Composite casing was ideal for the project location, since it's a true rust-free type of construction complete with a non-corrosion lifetime guarantee of up to 15 years of operation!

Besides the corrosion requirement, the Biotechnology company required that units would conserve the same weight since it's a retrofit. This request was successfully achieved by Annexair since the Thermo-Composite units are lighter than conventional steel units and contain almost no steel. In fact, the casing is a completely steel-free type of construction. Only the base structure under the composite floor is made of steel. This innovative feature gives more possibilities to owners as the weight of the units are reduced by up to 40% compared to steel units. In this project, Thermo-Composite units were perfectly responding to the weight conditions required by the company.

> ***"In short, Annexair was selected for several reasons. Overall, they provided the best demonstrated solution to several unique design requirements."***
>
> Ernie French
> Sales Engineer, Norman S. Wright

High performance data and engineering also comes with the improved performance of components used inside the unit. Producing a total airflow of 45 000 CFM, the energy recovery components included were the Sensible Wheel Exchanger, Evaporative Cooler and Indirect Gas fired Burner.

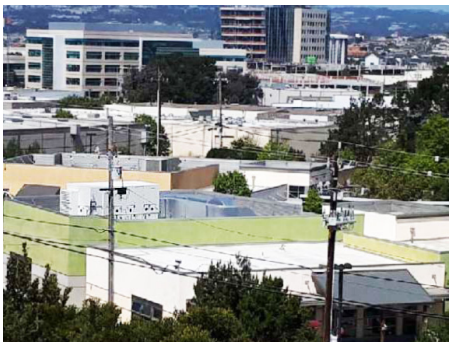
TAILORED MADE PRECISELY FOR THE JOB

Thermo-Composites units including high efficiency Sensible Wheel Exchanger, Evaporative Cooler and Indirect Gas Burner

First of all, energy recovery units represent by far the most popular family of products sold by Annexair simply because it includes high efficiency Air-to-air Exchangers such as Heat Wheel, Fixed Plates, Dual Wheels, Heat Pipes and Wrap-Around Heat Pipes. All of those Air-to-air Exchangers could be designed with one of the Annexair innovative refrigeration systems: the Air-Cooled V3 Concept and the Water-Sourced-Heat-Pump V3 Concept. For this project, the Biotechnology company chose an ERP unit with partial air, to mix the outside air with the supply air and increase the building's energy recovery. Since the company wanted to recover energy and temperature only, Sensible Wheel Exchangers were added to their units. Compared to the other Air-to-air Exchangers, Heat Wheels are the most efficient and popular technology used at Annexair. From 2,000 to 80,000 CFM capabilities, they are available with a wide sequence of cooling and heating options based on customers' requirements.

The second component used in this project was the Evaporative cooler which is often used in dry areas such as San Francisco. Evaporative coolers represent an economical option since they produce free cooling to the space without any motor. The third component installed was the high efficiency Indirect Gas Fire Burner that recovers more energy than a regular gas burner. Indeed, Annexair uses a condensing burner to recover heat energy as it goes through the second exchanger instead of being powered outside. This technology allows the Indirect Burner to recover up to 92% energy compared to the usual 85% ratio. Why lose energy when you can keep it and re-use it?

RESULTS



Units were similar weight than existing units installed

Annexair Thermo-Composite ERP units were the smartest solution considering the customer's requirements in terms of corrosion, weight and performance. Indeed, the Thermo-Composite units are tested to be a superior non-corrosion construction and include a lifetime warranty. In terms of weight, they are tested to be up to 40% lighter than any conventional steel units which also represents a more economical choice for building owners when choosing crane.

Performance-wise, Thermo-Composite units have an extremely rigid construction and casing deflection rating and they are chemically resistant to all urban pollutants. The panel has 2-in thick with R-14 insulation compared to regular 1-in panels, making energy recovery higher. Annexair saves energy because it offers units with the right and most reliable components and pays close attention to reach uncompromising standard of quality. All components chosen surpass requirements charted in their category and offer the best quality of Air-Handling units like no else does.

PROJECT SUMMARY

Name
Confidential Company
Location
San Francisco, CA
Project Type
Retrofit
Application
Pharmaceutical
Challenge
Replacement of outdated units

Solution
4 Annexair ERP Themo-Composite Units
Units Features
• Lifetime warranty against corrosion
• 40% lighter than steel units
• Special construction to avoid internal mould and mildew

Decision Factors
Project located on the San Francisco bay required special unit construction to combat corrosion and guaranty service life. Units with similar weight were required for the retrofit, including high performance engineering data.

Retrofit completed with new Thermo-Composite HVAC systems