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Case Study

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

Synergy Investments - Boston, MA

Retrofit project in Boston Harbour featuring 10 new Annexair Thermo-Composite Units

CHALLENGE

Synergy Investments is a Boston-based real estate investment and development firm focused on the acquisition and operation of office, retail, and residential properties. Annexair, was chosen for a retrofit project on 27 Melcher Street for an HVAC upgrade. The retrofit required the replacement of 10 existing air handling units that were simply worn out.

The main challenge of the retrofit was the location near the Boston Harbor front. The location required a superior cabinet construction to combat corrosion on the units, which was increasing rapidly in a saline environment. Indeed, the new units needed a special exterior and interior salt-spray coating that would resist the salty air and extend the lifespan of the units. Since the project was a retrofit, the second challenge for this project was the weight of the units, which had to remain the same or inferior while maintaining the same performance data as the old units.

ECO PRODUCT

GREEN WORLD go green enterprise

SOLUTION

Existing Carrier 48 Multi-zone units

The innovative Thermo-Composite unit created and manufactured by Annexair was the perfect solution for the retrofit project since the unit has a superior corrosion resistance compared to any other steel unit on the market. Indeed, the Hygienius Construction casing is made with Thermo-Composite panels instead of steel, which eliminate all risks of corrosion on the panel and unit. In fact, the panel is a certified foam made with a unique type of polystyrene, including 30% recycled content. The panel's exterior and interior are finished with a special PVDF 3000-hour salt-spray resistant coating to ensure that it won't rust over time. All Annexair Thermo-Composite casings come with a lifetime corrosion warranty, making those units the smartest and most logical purchases to make when it comes to the high quality and corrosion resistance HVAC requirements. Therefore, the Thermo-Composite units were perfectly meeting the first challenge of the retrofit project.

As for the weight challenge, it's important to mention that Thermo-Composite units represent a much lighter option than conventional steel units simply because there is almost no steel in the construction. In fact, Thermo-Composite units are 40% lighter than traditional steel units! Weight was thus not an issue for the retrofit project since the 10 new HVAC Thermo-Composite units were lighter than the old Carrier 48 Multi-zone units originally on the roof. Best of all, did you know that Thermo-Composite units are similar in price to traditional steel units? Comparable pricing between Thermo-Composite units and steel units was the final element of success in the retrofit project.

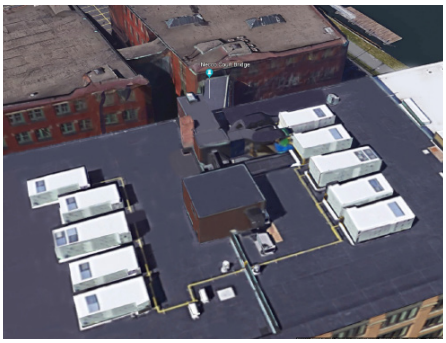
Units were not heavier than existing units installed 25 years ago

MORE ABOUT THE UNITS

The unit housing came with a no-through metal 2" THERMO-COMPOSITE and foam panel construction - interior and exterior. All panels and access doors had a double wall construction with R14 foam insulation for every 2" of construction. The foam insulation was Greenguard certified®. Unit casing was tested to have no exterior condensation at interior AHU temperatures down to 43 °F while unit exterior conditions were maintained at 95 °F dry bulb/ 85 °F wet bulb. The panels were tested in accordance with SMACNA and ASHRAE 111 to have a deflection of no more than L/1150 at 10" and to withstand air pressure up to 8" wc with less than 1% leakage. Fire resistance of the panels was in compliance with UL 94. THERMO-COMPOSITE panels were used for the entire unit construction, including but not limited to, walls, doors, floors, roof, interior partitions, and electrical compartment. The frame consisted of anodized extruded aluminum profiles which incorporated a thermally broken construction; welded together for reinforcement and insulated for superior thermal performance. Base structure was fully welded and had integral lifting lugs which were removed once the unit was installed. All roof and side wall seams were positively sealed to prevent water and air leakage.

Perfect curb matching for quick replacement

Access doors were provided to all major components to facilitate quick and easy access. Access doors were made from the same material as the unit casing and incorporated thermal break construction. As mentioned, units had the entire exterior finished with a PVDF coating designed for UV resistance. Paint passed ASTM 8117 3000-hour salt fog resistance testing and ASTM D4585 3000-hour moisture condensation resistance test. In addition, paint met AAMA 620-02 standard for colour, chalking, gloss retention, and abrasion resistance. The air handler unit casing was provided with a lifetime warranty against corrosion resistance.



Skyview from the 10 new Thermo-Composite units made by Annexair

RESULTS

The Annexair Thermo-Composite Units were a great fit for the Synergy Investments project since we were able to increase the old Carrier 48 Multi-zone wall construction from 1" to 2" double wall while remaining close to the existing replacement unit in terms of weight. Our double-wall polymer core provides a higher insulation against cold/heat and increases the overall energy performance on a year basis.

Thermo-Composite units were ideal for the project location near the Boston Harbor since the casing has superior corrosion resistance combined with PVDF 3000-hour salt-spray resistant coating. This type of construction prevents the internal mould and mildew usually seen on seafront units and is chemically resistant against all urban pollutants. A Thermo-Composite casing increases the longevity of the unit life and therefore reduces the costs associated with unit maintenance.

PROJECT SUMMARY

Name
Synergy Investments
Location
Boston, MA
Project Type
Retrofit
Application
Office Building
Challenge
Replacement of outdated Carrier Multi-zone units

Solution
10 Annexair Themo-Composite Units - Multi-zone design
Units Features
• Lifetime warranty against corosion
• 40% lighter than steel units
• Special construction to avoid internal mold and mildew

Decision Factors
Project is located on a harbour required special units construction including PVDF 3000 hrs salt-spray coating to combat corrosion and garanty service life. Units with similar weight were required for the retrofit.

Retrofit completed with 10 new Thermo-Composite HVAC systems