



Mercury guide to:

Air Handling Units: refurbish or replace?





REFURBISH vs. REPLACE?

For buildings with old and deteriorating ventilation plant, in many cases the clear choice may be to replace the old AHU's, however there are many reasons, not just financial as to why repair or refurbishment alternatives should also be explored.



Mercury Climatic Services understand that building owners, managers and Facilities Contractors want choice and therefore are able to offer the balance of the two. For twenty years, the division continues to expand but continues to provide high quality site assistance.

As well as maintenance, repair and refurbishment, Mercury Climatic Services offers an AHU Refurbishment services and is one of a wide range of services available.

TOP TIPS

MERCURY PROS & CONS

Do you need a new AHU? Or can we refurbish the existing one?



New AHU Pros

A new AHU will give you a brand new product, potentially with the most efficient components on the market and will come with a manufactures warranty. All well and good especially when installing into a brand new site where all the duct work is new and designed to match the ventilation system.

Available for a wide range of applications. With energy efficient, fans and robust case construction, low profile units can be used for ceiling voids, plant rooms and roofs and can be configured for top or bottom access.

As well as a wide range of standard single or double skinned standard "out of a box" units in a variety of sizes we can also supply bespoke air handling units also available with Heat recovery and provide a low cost and energy efficient solution. Flat pack options can also be provided for difficult site conditions.

- Suitable for many applications
- Unlimited range of duties
- High efficiency heat recovery
- 50 mm double skinned case construction
- Low energy / high efficiency fans
- Specific Fan Power to achieve L2 Building Regulations
- High quality plantroom or weatherproof units available
- Flatpacked or sectional
- Optional EC Fans with integral control
- Cross flow heat exchanger with optional controls and heating types

Tight spaces and access can be overcome with carefully engineered flat packed units.

Some clients like to see a brand new product that can be guaranteed and designed to their specific requirements, and for this our sister company **Ecoairbox** can offer energy efficient AHUs with optional heat recovery tailored to the client's needs. (See www.Ecoairbox.com for more info)



New AHU Cons

To retrofit a new AHU to an existing system is an option, however the duties available may be governed by the existing ventilation system i.e. the size of the duct and what the max air volume delivery it has. There will also be associated cost with modifying all services and steel work to suit the new unit, and possibly a crane to remove the old unit and site the new one.

Another alternative may need that the old units cannot be removed simply and may need that the old is disassembled cut up and then disposed of with manual removal from site. The new AHU would have to be built in the factory, tested and then dismantled, and then be reassembled on site.



AHU Refurbishment Pros - Why refurbish?

Refurbishing of existing air handling equipment is a practical alternative to replacing with new. We look at tons of Air Handling Units every year. All types, sizes and in varying condition. Typically we are called in to assess problems or look at replacement options. In most cases they don't need to be replaced, simply just refurbished.



Cost effective

As an example, the refurbishment cost of existing equipment is around 35-50% of the cost of new equipment, (excluding removal and re-installation costs). New components can often be flat packed to further save crane and road closure costs. If budgets are tight, quotes can be provided to give an itemised list, so works can be limited to essential items only.



Less disruption

Works can be scheduled so as not to disrupt the clients operation. Mercury Climatic can also carry out works overnight or at weekends.

Building occupiers want as little disruption and downtime as possible when dealing with air handling units. Downtime is inconvenient and potentially disruptive and costs money, so a solution that will minimise any inconvenience and save money in both the short and long term is essential.

In many cases sealing and re-sealing condensate pans, AHU chamber floors and other surfaces is all that is needed to update an AHU. In those cases, typically only 6 – 8 hours of downtime is needed (often in the evening and night) over a two day period. The unit can run during the day between work shifts. If additional equipment needs to be replaced or updated then schedules can be altered to make that happen with minimal disruption.

Refurbishment is often faster than replacement. You could also choose to separate the necessary works and complete it at different times for greater flexibility. I.e. a gas burner can be replaced one weekend, a Cooling coil and other components on another. A controls upgrade that can integrate with BMS could then follow later to integrate with other equipment on site.

Improving the existing specification

This could include adding a cooling coil, heat recovery, higher grade filtration or upgrading with the latest Energy saving fans. Increased efficiency means running costs can be improved by a considerable margin.

If you are looking to increase the unit's capacities then this will be limited by the size of the AHU frame but can be done. All components can be refurbished or changed to meet lower energy targets. We can also look to change the configuration of the unit to suit new requirements, for example; remove heat pump and install new LPHW coil, convert AHU to full fresh air, change the configuration etc.

What can be refurbished on the AHU?

With equipment in poor condition there can be substantial improvements. Once the refurbishment has been completed, and assuming that it's properly maintained, Mercury Climatic Services can give around 15 years working life to existing equipment.



AHU Roof replacement

The AHU roof panels often deteriorate on an AHU. They can be either treated or replaced. We can replace any damaged roof panels and add a protective covering. For larger AHU's, and those with unusual shapes, we can provide a polybutylene seamless roof, with a 10 year guarantee.

Heating and cooling coils

For units with limited access, new replacement coils can be provided in sections which are then joined together on site, also replacing valves and actuators as required. Coils can also be provided in flat packs to suit further restricted access situations.

Gas burners

Mercury Climatic can repair or replace any make or model of gas heater in AHUs.

Dampers

Jammed dampers are one of the most common causes of AHU's not working properly and are easily repaired or replaced.

Filters

Often older units have air filters that fit poorly thereby allowing the bypass of unfiltered air. We can replace filter frames and fit higher grade Energy efficient filters as required.

Fans

All centrifugal or axial fan types can be repaired or replaced. We recommend that fans should be replaced with the latest energy efficient direct drive fans, and those should be inverter controlled. Furthermore by replacing old forward curved fans with new plug fans can use 15-20% less energy.



AHU Refurbishment Cons

Realistically the only limitation with a refurbishment will come down to the limitations of the old AHU itself. It cannot be configured to deliver more than what it was originally designed for

CONCLUSION

The physical condition and changes to building use (no of occupants etc) will determine what can or cannot be done with the existing equipment and of course financial implications will have to be taken into account too.

Refurbishment can often be quicker solution and programmed to be completed sympathetically with little down time and effects on the buildings ventilation system.

Be it a new AHU or existing, regular service of the units will prolong the unit's life and deliver the required capacities for the durations of its life. However, although you have maintained your equipment to the highest standard at some point it will need replacing or refurbishing.

TOP TIP

New AHU or existing, regular service of the units will prolong the unit's life

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