

Coping with the British weather – and not just humidity

Outdoor Installations

Humidifiers pose a unique issue when designing a roof top or outdoor system as the need to prevent the water within the humidifier from freezing but equally keeping the electronics cool has to be considered.

When considering a humidifier for installation outdoors, factors such as weatherproof design, ease of installation and operation, as well as ensuring reliability and performance become a major factor but are often ignored.

On many occasions it has been the case that the humidifier positioned on the roof of an office block next to an air handling unit is designed as if the housing just needs to keep the rain out of the electrics and then everything shall be alright.

However to take advantage of the reliability and performance provided by quality manufacturers equipment you do need to ensure that the humidifier is provided with more than a rain cover.

Temperature has to be considered – High temperatures can cause the overheating of electrical components. This obviously is more likely in the summer months but a housing without ventilation where the structure contains a steam generator shall quickly go out of climatic tolerance. In the winter a thermostatically controlled heater shall ensure that the minimum temperature is not exceeded. Insulation of the cabinet shall also reduce the likelihood of condensate forming which again would not be welcomed by the electrical equipment.

Many air handling unit manufacturers build a housing on the side of their units to house the humidifiers – this normally is a good solution and provides a well constructed weatherproof enclosure next to the warm air passing through the air movement system so keeping the cabinet above freezing in winter. But a purpose built cabinet provides additional reassurance.

Weatherproof housings

This is where a specific structure is manufactured to house a humidifier. It is normal to find standard electrical panels being used but a well engineered insulated and ventilated housing is far superior and shall prevent condensation, overheating and freezing thereby increasing the life of the equipment and protecting an asset.

A positively locked door is important as an open door obviously somewhat affects the cabinets IP rating. A good quality and scratch resistant paint work and neat construction prevents rusting and cabinet corrosion ensuring the integrity of the housing is maintained long after installation. Well sealed grommets and connectors ensuring that where services enter and leave the cabinet they do not compromise the quality and effectiveness of the housing.

The primary advantage of these units is that a standard off the shelf humidifier can be used.



Picture 1: Electro Vap Electrode boiler steam Humidifier built in to a housing.

Purpose built Weather-Proofed humidifiers

This is where the humidifier is not just placed into a weather proof box but the humidifier enclosure is specifically designed by the manufacturer as an external unit. Outdoor humidifiers are engineered to last. They're built for the most extreme temperatures from -40°C to 48°C and are impervious to weather conditions, such as rain, sleet, and snow. These humidifiers are not just a simple outdoor enclosure built around standard indoor equipment – they're specifically designed for the requirements of an outdoor installation. They're fully insulated and constructed from heavy-duty steel with the exterior and interior surfaces protected by a zinc primer and polyurethane powder coating for maximum resistance against scratching and corrosion. A built-in overheat and freeze protection system ensures safe operation and accurate functioning in all climatic conditions.

Installation is made simple and straight forward with only one item of equipment to fit plus they come with lifting lugs so if access is restricted and need to be lifted by crane they can be. The space and foot print required to locate the humidifier is also greatly reduced when compared to housed humidifiers.

Not all humidifier manufacturers provide this range of units but it is an asset to projects subjected to our erratic weather conditions.



Picture 2: Neptronic Element boiler steam Humidifier with weatherproof housing

Simple Installation and Operation

Simplifying installations and providing time-saving features is an important part of planning and project managing on site so solutions which increase the quality of the final solution and save time are welcomed.

Regular maintenance times are reduced when servicing a well designed system. All components can be easily accessed. Breakdowns are reduced as the equipment is kept well within manufacturers (and electrical) recommendations and the capital asset shall last considerably longer if it is prevented from corroding and decay.

No need to open any access points to view the humidifier display as these should be fully visible through the front door window. All service components, such as the steam chamber and electrical panel, are completely accessible via hinged doors and are designed to minimize service time and frequency.



Picture 3 shows the neatness of the weatherproof humidifier (Mounted at the end of the walkway) and the humidifier within a weatherproof housing (with door off to the right of the AHU access panel).