

Odour Control & Risk Assessment - House of Social, Manchester

With recirculation, we would not normally carry out a risk assessment for odour in the traditional style, as each Reco-Air unit is designed and manufactured to provide the recommended level of odour control, specific to each application.

Recirculation Systems Risk Assessment

With Reco-Air it is an internal kitchen extract system, where, ordinarily, 100% of the extracted air is cleaned and recirculated back into the kitchen space. As a result, there is no risk of any filtered air from the cookline causing any external nuisance.

We follow the guidelines on recirculation, contained in the Industry BESA document DW/172 and the City of Westminster Guidelines on Kitchen Extraction. We also follow the 'old recognised' Defra document that has been withdrawn, recommending a dwell time within the active carbons of 0.2 of a second, to capture most of the odour on the first pass through the system.

At the House of Social, Manchester, we have oversized the Reco-Air units to provide an 'enhanced' level of odour capture. The units have two settings, low at 0.8 m³/s extraction rate and a high setting at 1.2 m³/s. At low setting, there is a dwell time of 0.36 secs and at high 0.23 secs. These would give a theoretical odour absorption of 88 % and 91 % respectively. This is more than acceptable when discharging to atmosphere. Recirculation systems continually process this air through the system to retain any residual odours within the cooking area, such is the draw to the canopy.

Imitating a Conventional System

To improve the odour capture at the canopy, we have incorporated 'patented' capture Jet technology within the manufactured canopies. This adds an air curtain around the edge of the canopy to reduce any drift and spillage. We also have added a small bleed duct, to help create negative pressure within the kitchen. These ducts discharge around 10% of the cleaned air directly from the Reco-Air unit to atmosphere, via the grilles in the side louvres of each kitchen. This bleed duct is a small 150mm spiral duct with a small shunt fan to encourage air to travel through the duct out to atmosphere. Air in this duct will contain the residual odours that are not captured by the main active carbons within the Reco-Air unit. We have, therefore, added a further bank of four 602mm x 562mm x 25mm carbon panel filters, in a filter housing prior to the discharge louver, offering a dwell time of 0.43 sec at the low setting and 0.29 sec at the high setting. The estimated residual odour risk is therefore minimal. This duct has also been fitted with a volume control damper, which can be shut off if any kitchen were to cause a nuisance. The external discharge and risk then becomes zero.

General Design & Maintenance

In addition to the above, it should be noted that the discharge is at high level, around three metres high, into a wide open area and not close to any air intake ducts. The Reco-Air system, is monitored with pressure sensors over the primary filters and a countdown timer of 5200 hours on the carbons, activating warning lights to indicate when servicing / replacement filters are required.

A service contract will be issued and entered into to cover annual maintenance of the Carbon filters in both the Reco-Air unit and within the bleed duct filter box.

In summary

Whilst no activated carbon filter manufacturer will guarantee 100 % odour removal, the system is designed to exceed the odour capture recommended by the industry guidelines.

The recommendation would give a theoretical residual odour level on the first pass through the system of 18 %. At High speed the Reco-Air unit will reduce this to 17 % and on low speed further reduced to just 9 % residual odour. This is internally discharged back to the kitchen.

Through the bleed, given the additional carbon panel filters, the level of residual odour would be further reduced. At high speed, residual odour would be down to just 12 %, so around 3 % of the original level. At low speed just 6 % of residual odour would pass through, so around 0.7 % of the original levels discharged to atmosphere.

As we know, each operation is different, theoretical percentages can only be estimates, and noting each 'Human Receptor' – the nose – is sensitive to different levels and types of odour, hence, if any of the kitchens become a nuisance, either now or in time, the ability to shut off the bleed duct will eliminate any external risk.

The risk is therefore very Low.

Reco-Air
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