

Best Practice Design for Better Air Quality in Commercial Buildings



Preface

Why have we produced this document and who is it for?

Following on from previous published 'Best Practice Guides', AirRated™ have been approached by landlords to help support the handover of CAT A office spaces to tenants, facilitating the healthy building journey in the process.

The purpose of this document is to create a 'go-to' Fit Out Guide for tenants to understand what good and bad looks like when it comes to building design, as well as increasing awareness with regards to the continued importance of air quality within the office space.

This information follows closely on from the recently updated UK Building Regulations published on June 15th [which had a focus on ventilation and indoor air pollutants] as well as National Clean Air Day on June 16th.

AirRated™ and Area have partnered to help navigate this difficult process for tenants - we hope you find this useful!

AirRated

AirRated™ was born out of the desire to empower people with knowledge about their indoor environment. Exposure to poor air quality can have a hugely adverse impact on our health, wellbeing, and productivity. We help our clients to promote healthy spaces by raising awareness of the importance of indoor air quality and providing strategies for improvement.

airrated.co



Area is the founding member of Fourfront Group, a family of workplace specialists with one united vision – to create inspiring environments that embody our client's values and cultural aspirations through sustainable, transformative change.

As a Group, we provide a comprehensive end-to-end consultancy, design and construction service to our clients. We adapt our approach to give the right level of modification, restructuring and rethinking to achieve the right outcome.

area.co.uk



Key Questions To Ask When Searching For Your New Space

When searching for the right building as part of your next office move, here are some key questions and certifications that should be taken into account:

- What is the Outdoor Air Quality [ODA] rating in the area?
- Is the building naturally or mechanically ventilated?
- How old is the current mechanical system?
- Do you have complete control of the ventilation system?
- Where are the Air Handling Units [AHU's] located?
- Does the building achieve the minimum requirement for ventilation defined by Building Regs Part F - 10l/s/person? The ideal ventilation rate would be aligned to BCO guidance, which currently recommends 12l/s/person of outdoor air.

USEFUL ACCREDITATIONS TO LOOK OUT FOR . . .

- AirScore™
- BREEAM
- Fitwel
- LEED
- NABERS
- SKA
- WELL



Key Factors To Know When Searching For Your New Space

When searching for the right building as part of your next office move, here are some key considerations that should be taken into account:

You should be searching for a building within an area with an [Outdoor Air Quality \[ODA\]](#) rating of ODA1. ODA is measured from 1-3 with the lower number equating to a better quality of air

The ventilation rate refers to the volume of air that is provided to a room over a period of time, and is often stated in buildings guidance as recommended values. In most guidance – a value of 12l/s/person is recommended. Buildings Regs Part F suggests a value of 10l/s/person is the minimum requirement. However, BCO guidance recommends 12l/s/person for most commercial buildings.

The location of the Air Handling Units [AHU's] should generally be located as high up as possible. They draw air in to supply outdoor air to your office space. The higher the location, the less polluted the air.

Openable windows and naturally ventilated buildings are more cost-effective for tenants and use less energy. However, you are reliant on the local ODA. Mechanical ventilation offers better control over incoming air.

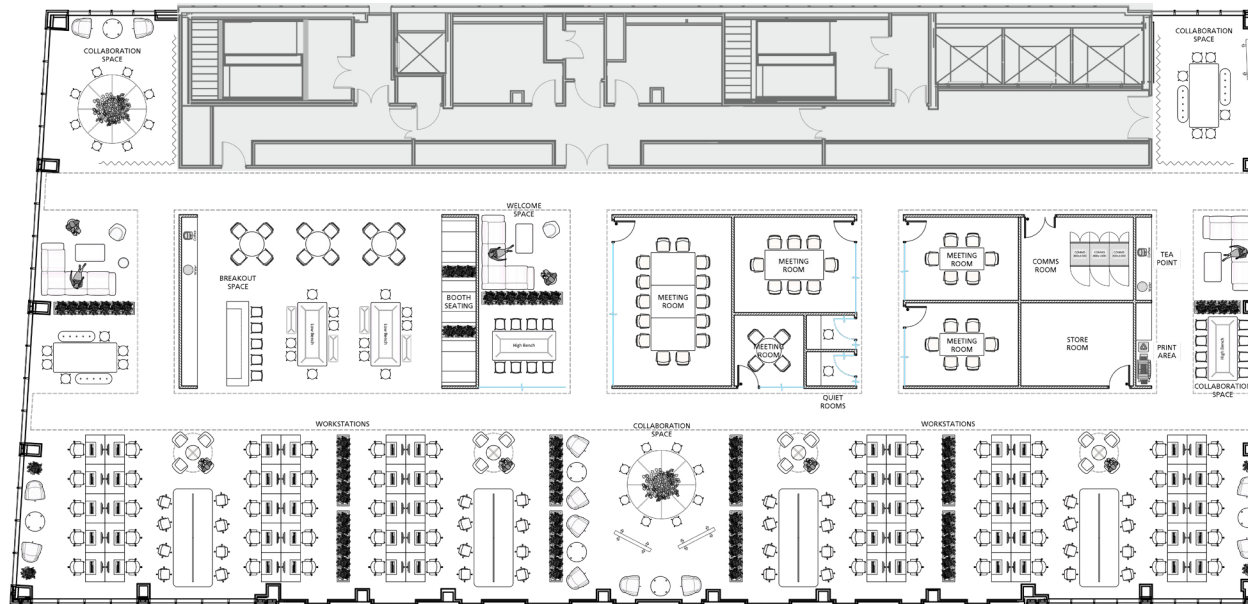
You should look to replace your HVAC a [Heating, Ventilation & Air Conditioning] system within your office space when it reaches between 15-20 years old.



The Details of Your Layout

HOVER OVER TO SEE DETAILS

When planning the design of your new office, with air quality top of mind, analysing the existing space is the best way to begin. Positioning and specification of risers, air intakes, exhausts and heating & cooling systems should all be readily available information and you'll also need to understand what occupancy rate the base build is designed for. With the help of your contractor, talk through this information as it should end up dictating layout of your space and the density to which you fit-out your office. There are factors beyond air quality that should be considered when choosing the location of social spaces such as; views, daylight & proximity to quieter areas of the office.

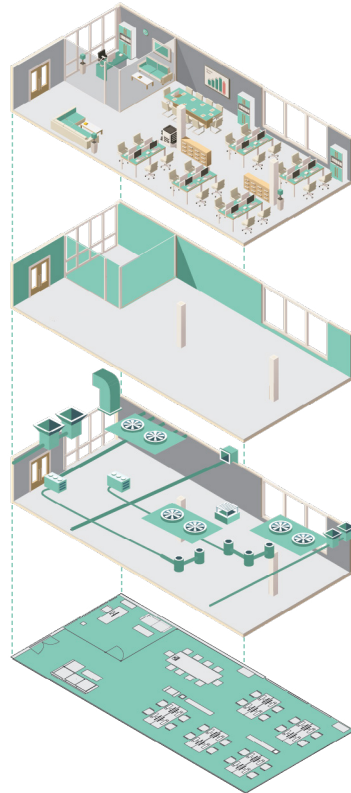


- * PLAN BASED ON 10K SQ.FT FLOOR PLATE
- * PLAN BASED ON CAT B REFURBISHMENT FROM NEW CAT A FIT-OUT
- * COSTS BASED ON £100 P/SQ.FT BUDGET

Project Cost Breakdown

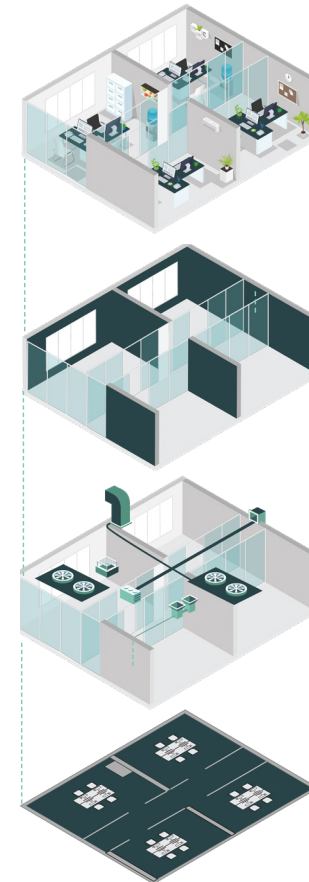
When thinking about the cost of your project, the existing ventilation system and amount of cellularisation can have an enormous impact:

- **FF&E**
30%
- **BUILD**
22%
- **M&E**
42%
- **DESIGN**
6%



OPEN WORKSPACE

- **FF&E**
14%
- **BUILD**
34%
- **M&E**
44%
- **DESIGN**
8%



ENCLOSED WORKSPACE

* PLAN BASED ON 10K SQ.FT FLOOR PLATE

* PLAN BASED ON CAT B REFURBISHMENT FROM NEW CAT A FIT-OUT

* COSTS BASED ON £100 P/SQ.FT BUDGET

Other Considerations for your Office Space

Once the key build factors have been thought about on your new office space, there are other background factors that must also be considered:

Scents

Air fresheners are growing in popularity in indoor environments. For years they have been found in our homes, but are now a sought after addition to many workplaces. Air fresheners are designed to release an aroma to the indoor air, with the intent of either masking odours or creating a pleasing indoor space; an increasing trend with an “experiential” take on workplaces.

However, releasing an artificial scent into the air doesn't come without its problems. Often air freshener ingredients are unknown and undisclosed and can consist of a range of potentially hazardous air pollutants - even the “green” products. These pollutants negatively impact air quality by interacting with other compounds in the air and increasing the concentration of volatile organic compounds (VOCs). Increases in these pollutants have been associated with adverse health effects, such as migraine headaches, asthma attacks, irritation of skin and breathing difficulties.

It is often the case that the composition of the fragrance is likely to be more of an issue than the type of delivery mechanism; diffuser, spray, gel etc. Not all air fresheners are toxic, and a number of manufacturers have worked hard to reduce toxic content. A few key ingredients to look out for, and avoid, are: CMR's, Phthalates, Parabens, Silicone and PEG. However, although not toxic, there are other ingredients to be mindful of. As an example, Limonene and Linalool are listed as potential allergens by the European Union and are known to aggravate respiratory conditions and allergies.

Materials

As a rule of thumb, the key when considering materials for use within any office fit-out is that organic materials are generally better than synthetic and - from an air quality perspective - should be used wherever safe and possible. Additionally, once material selection has been completed, timings around bringing items to site should also be considered. Most new materials will off-gas (emit) potentially harmful VOCs, but this will lessen over time. Where there is the opportunity to hold items off site whilst this process completes it will have a positive effect on the air quality of the space. Specific guidance around material selection can be found within BREEAM for those wanting more detailed information on this space.

What to look out for:

VOC emissions from construction products are relevant for indoor air quality and are therefore regulated in some countries in Europe, such as Belgium, France, Germany and Italy. Ecolabels and Quality Labels go beyond that and are certifying low emitting products.

Quality Labels certify specific product performance, while Environmental Labels (Ecolabels) certify that the product has lower impact on the environment compared to other products. These labels are voluntary.

[‘BREEAM compliant’ products or materials](#)

[Hea 02 - Indoor Air Quality](#)

For examples see following page...



Other Considerations for your Office Space

Some examples:

1. STANDARD 100 by OEKO-TEX® is one of the world's best-known labels for textiles tested for harmful substances.

[STANDARD 100 by OEKO-TEX®](#)

2. The EMICODE® label certifies flooring installation products, adhesives and construction products like sealants and wall panels as well as lacquers, finishes and oils for resilient floorings.

3. The M1 label from Finland certifies low-emission products such as decorative materials, fixtures (e.g. kitchen cupboards, worktops, doors) and furniture.

4. GUT is a label for low-VOC emitting textile floor coverings.

5. Danish Indoor Climate Labelling (DIDL) is a labelling scheme that documents the emission of chemical compounds from building materials, furniture and fixtures.

6. Eurofins Indoor Air Comfort (IAC) product certification is a well-established tool to show compliance of a product with low-VOC emissions criteria set out in Europe on two levels:

Standard level Indoor Air Comfort - certified product shows compliance of product emissions with the criteria of all legal specifications issued by authorities in the European Union and its Member States.

Higher level Indoor Air Comfort GOLD - certified product shows additional compliance of product emissions with the criteria of many of the voluntary specifications issued by most relevant ecolabels and similar specifications in the EU and requirements for sustainable building certifications. Therefore certified products are those with the best-in-class low emissions, thus good for indoor air quality.



Additional resource:

[Best Practice Use of Space in Commercial Buildings](#)

[What is an AirScore?](#)

[Ultimate Guide to Sustainability and Environmental Certifications](#)

[A framework for designing the new workplace](#)

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We hope you've found this document useful in your building search. For any further queries, please don't hesitate to get in touch with us.

We're here to help . . .

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