IAQ Rating Index

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Rating	Excellent (5 points each)	Good (4 points each)	Fair (3 points each)	Poor (2 points each)	Inadequate (1 point each)
Temperature (°C)	18-21 °C	Plus or minus 1 °C (including variance in occupied rooms, seasons and times of day)	Plus or minus 2 °C (including variance in occupied rooms, seasons and times of day)	Plus or minus 3 °C (including variance in occupied rooms, seasons and times of day)	Plus or minus 4 °C or more (including variance in occupied rooms, seasons and times of day)
Carbon Dioxide (PPM)	< 600	601 - 800	801 - 1500	1501 - 1800	> 1801
Relative Humidity (% RH)	40 - 60	< 40 / > 60	< 30 / > 70	< 20 / > 80	< 10 / > 90
Carbon Monoxide mg/m^3	0	-	1 - 7	-	7 >
Nitrogen Dioxide (mg/m^3)	< 0.2	-	0.2 – 0.4	-	0.4 >
TVOC (mg/m^3)	< 0.1	0.1 – 0.3	0.3 – 0.5	0.5 – 1.0	1.0 >
Formaldehyde (mg/m^3)	< 0.02	0.02 - 0.05	0.05 - 0.1	0.1 - 0.2	0.2 mg/m3 >
Radon (Bq m3)	0	-	0 - 20 Bq m^{-3}	20 - 100 Bq m^{-3}	100 + Bq m^{-3}
Particulate matter (mg/m^3)	0 – 0.023	0.024 – 0.041	0.042 – 0.053	0.054 – 0.64	0.065 >
Laser Particle counter 0.3 ug 0.5 ug 1.0 ug 2.5 ug 5.0 ug 10.0 ug	0 – 100,000 0 – 35,200 0 – 8,320 0 – 545 0 – 193 0 – 68		100,001 - 50,000 35,201 – 87,500 8,321 – 20,800 546 – 1,362 194 - 483 69 - 170		250,001 > 87,501 > 20,801 > 1,363 > 484 > 171 >
Viable air sampling (CFUs)	< 500	500 - 1,000	1,000 - 10,000	10,000 - 100,000	> 100,000
Occupant's perception of comfort (%)	100% of population satisfied	90-99% of population satisfied	80-89% of population satisfied	70-79% of population satisfied	Under 70% of population satisfied
Odour	80% > of occupants described any odours as "Clearly acceptable"	80% > of occupants described any odours as "Acceptable"	80% > of occupants described any odours as "Neutral"	80% > of occupants described any odours as "Just not acceptable"	80% > of occupants described any odours as "Clearly not acceptable
Overall Rating	61 - 65	52 - 60	39 - 51	26 - 38	< 25

The above data provides indicators for a healthy indoor environment; however, specific contaminates that present a risk should be investigated, such as specific species of mould, fibrous materials and particular chemical compounds. Reference to be made to relevant documentation, such as the HSE's EH40 document. Synergistic effects should be considered.

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Component	Scale	Measurements	Source
Temperature (°C)	Excellent	18 - 21°C	The Building Research Establishment.
	Good	Plus or minus 1°C (including variance in occupied rooms, seasons and times of day).	No standards.
	Fair	Plus or minus 2°C (including variance in occupied rooms, seasons and times of day).	No standards.
	Poor	Plus or minus 3°C (including variance in occupied rooms, seasons and times of day).	No standards.
	Inadequate	Plus or minus 4°C or more (including variance in occupied rooms, seasons and times of day).	No standards.
Carbon Dixoide (PPM)	Excellent	Below 600 PPM	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Good	601 - 1000 PPM	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Fair	1000 - 15000 PPM	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Poor	1500 - 1800 PPM	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Inadequate	1800 PPM +	No standards.
Relative Humidity (% RH)	Excellent	40 - 60 % RH	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Good	< 40 / > 60 % RH	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Fair	< 30 / > 70 % RH	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Poor	< 20 / > 80 % RH	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Inadequate	< 10 / > 90 % RH	No standards.
Carbon monoxide (mg/m^3)	Excellent	0 mg/m^3 (0.8 ppm)	No standards.
	Good	-	-
	Fair	1 - 7 mg/m^3 (5.6 ppm)	WHO European guidelines recommend not exceeding 7 mg/m^3.
	Poor	-	-
	Inadequate	7 mg/m^3 (5.6 ppm) >	No standards.

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Component	Scale	Measurements	Source
Nitrogen (mg/m^3)	Excellent	< 0.2 mg/m^3	No standards.
	Good	-	-
	Fair	0.4 - 0.2 mg/m^3	WHO air quality guideline recommends an annual average indoor nitrogen dioxide of 40 µg/m^3.
	Poor	-	-
	Inadequate	0.4 > mg/m^3	No standards.
TVOC (mg/m^3)	Excellent	< 0.1 mg/m^3	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Good	0.1 – 0.3 mg/m^3	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Fair	0.3 – 0.5 mg/m^3	Standard of Building Biology Evaluation guidelines for sleeping areas. Green Building Council (USGBC) recommends 500 ng/L as the upper TVOC limit.
	Poor	0.5 – 1.0 mg/m^3	Standard of Building Biology Evaluation guidelines for sleeping areas. Green Building Council (USGBC) recommends TVOC levels between 500 and 1,500 ng/L indicate that air quality is marginal and some effect on the occupants is possible.
	Inadequate	1.0 > mg/m^3	Standard of Building Biology Evaluation guidelines for sleeping areas. Green Building Council (USGBC) recommends levels above 1,500 ng/L indicate that IAQ should definitely be improved.
Formaldehyde (mg/m^3)	Excellent	< 0.02 mg/m^3	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Good	0.02 - 0.05 mg/m^3	LEED / BREAM.
	Fair	0.05 - 0.1 mg/m^3	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Poor	0.1 - 0.2 mg/m^3	Standard of Building Biology Evaluation guidelines for sleeping areas.
	Inadequate	0.2 mg/m^3 >	No standards, however WHO proposed guideline of 0.21 mg/m3 for the protection of long-term health effects, including cancer.

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Component	Scale	Measurements	Source
Radon (Bq m^{-3})	Excellent	0 Bq m^{-3}	No standards.
	Good	-	-
	Fair	0 - 20 Bq m^{-3}	The average level in UK homes is 20 Bq m^{-3} Public Health England.
	Poor	21 - 100 Bq m^{-3}	Target Level of 100 Bq m^{-3} is the ideal outcome - Public Health England.
	Inadequate	Above 100 Bq m^{-3}	Public Health England recommends that radon levels should be reduced in homes where the average is more than 200 becquerels per metre cubed (200 Bq m^{-3}).
Particulate matter (mg/m^3)	Excellent	0 - 0.023	Daily Air Quality Index - recommended by the Committee on Medical Effects of Air Pollutants (COMEAP).
	Good	0.024 - 0.041	Daily Air Quality Index - recommended by the Committee on Medical Effects of Air Pollutants (COMEAP).
	Fair	0.042 - 0.053	Daily Air Quality Index - recommended by the Committee on Medical Effects of Air Pollutants (COMEAP).
	Poor	0.054 - 0.064	Daily Air Quality Index - recommended by the Committee on Medical Effects of Air Pollutants (COMEAP).
	Inadequate	0.065 >	Daily Air Quality Index - recommended by the Committee on Medical Effects of Air Pollutants (COMEAP).
Laser Particle counter	Excellent	0.3 µm – 0 – 100,000 0.5 µm – 0 – 35,200 1.0 µm – 0 – 8,320 2.5 µm – 0 – 545 5.0 µm – 0 – 193 10.0 µm – 0 – 68	No standards, figures devised from various particulate counter sensors.
	Good	-	-
	Fair	0.3 µm – 100,001 - 250,000 0.5 µm – 35,201 - 87,500 1.0 µm – 8,321 - 20,800 2.5 µm – 546 - 1,362 5.0 µm – 194 - 483 10.0 µm – 69 - 170	No standards, figures devised from various particulate counter sensors.
	Poor	-	-
	Inadequate	0.3 µm – 250,001 > 0.5 µm – 87,501 > 1.0 µm – 20,801 > 2.5 µm – 1,363 > 5.0 µm – 484 > 10.0 µm – 171 >	No standards, figures devised from various particulate counter sensors.

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Component	Scale	Measurements	Source
Viable air sampling (CFUs)	Excellent	Below 1,000 CFUs of mould per gram in a culture sample plate.	Interministerial Committee on Indoor Air Quality. Ministry of Labour (MOL). 1988. Ontario, Canada, Report.
	Good	1,000 - 10,000 CFUs of mould per gram in a culture sample plate equals low mould contamination level.	The University of Minnesota.
	Fair	10,000 - 100,000 CFUs of mould per gram in a culture sample plate equals medium mould contamination level.	The University of Minnesota.
	Poor	100,000 - 1,000,000 CFUs of mould per gram in a culture sample plate equals medium to heavy mould contamination level.	The University of Minnesota.
	Inadequate	> 1,000,000 CFUs of mould per gram in a culture sample plate equals heavy.	The University of Minnesota.
Perception of comfort (%)	Excellent	100% of occupants satisfied with their indoor environment when surveyed.	No standards.
	Good	90 - 99% of occupants satisfied with their indoor environment when surveyed.	No standards.
	Fair	80 - 89% of occupants satisfied with their indoor environment when surveyed.	ASHRAE Standard 55, Thermal Environmental Conditions for Human Occupancy.
	Poor	70 - 79% of occupants satisfied with their indoor environment when surveyed.	No standards.
	Inadequate	Under 70% of occupants satisfied with their indoor environment when surveyed.	No standard, however, research indicates 69% of people dissatisfied with their indoor environment (Riggs, 2014).
Odour (%)	Excellent	80% > of occupants described any odours as "Clearly acceptable".	An informal reference to Fanger (1988) '*Introduction of the Olf and the Decipol Units to Quantify Air Pollution Perceived by Humans Indoors'*.
	Good	80% > of occupants described any odours as "Acceptable".	An informal reference to Fanger (1988) '*Introduction of the Olf and the Decipol Units to Quantify Air Pollution Perceived by Humans Indoors'*.
	Fair	80% > of occupants described any odours as "Neutral".	An informal reference to Fanger (1988) '*Introduction of the Olf and the Decipol Units to Quantify Air Pollution Perceived by Humans Indoors'*.
	Poor	80% > of occupants described any odours as "Just not acceptable".	An informal reference to Fanger (1988) '*Introduction of the Olf and the Decipol Units to Quantify Air Pollution Perceived by Humans Indoors'*.
	Inadequate	80% > of occupants described any odours as "Clearly not acceptable".	An informal reference to Fanger (1988) '*Introduction of the Olf and the Decipol Units to Quantify Air Pollution Perceived by Humans Indoors'*.

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