

A preliminary study on post-occupancy evaluation of four office buildings in the UK based on the Analytic Hierarchy Process

Article

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Table 1: Magnitudes of the pairwise reciprocal comparisons (Saaty, 2008; Srdevic *et al.*, 2011)

Degree of importance	Descriptions
1	Equal Important
3	Moderate Important
5	Strong Important
7	Very Strong Important
9	Extreme Important
2,4,6,8	Intermediate values between two adjacent scales
Reciprocals of the above	If a value of 1-9 is assigned to characterize the priority degree of incident <i>i</i> versus incident <i>j</i> by comparison, the reciprocal of the assigned value is used to describe the priority degree of incident <i>j</i> versus incident <i>i</i> .

Table 2: Random Index

n	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49

Table 3: Nine-point Likert Scale definition

Rating Scale								
Not at all Important	Moderately Important	Important	Very Important	Extremely Important				
1	2	3	4	5	6	7	8	9

Table 4: Key influence factors of the POE

B1	Indoor Environmental Quality (IEQ) Factors
C1	Lighting Quality (LQ).
C2	Indoor Air Quality (IAQ).
C3	Thermal Quality (TQ).
C4	Ventilation Quality (VQ).
C5	Noise Quality (NQ).
B2	Occupant Performance (OP) Factors
C6	Incorporating blood oxygen levels into the HVAC ventilation strategy.
C7	Integrating occupant skin temperature to inform the BMS and HVAC systems.
C8	Understanding galvanic skin response (GSR) to inform the BMS and HVAC systems.
C9	Calculating and aggregating occupant metabolic rates to inform the BMS.
C10	Understanding occupant activity levels within the workplace to avoid a sedentary existence.
B3	Workplace Quality (WQ) Factors
C11	Sufficient work space so as not to feel over-crowded.
C12	The overall quality, comfort and style of the workplace furniture.
C13	Transition from outside the building to desk as easily as possible.
C14	The design and layout of the workplace in promoting a more effective and efficient working environment.
C15	Appropriate ICT systems to alleviate desktop components at the work-desk.

C16	Adequate social and amenity spaces.
C17	HVAC and building services as a major aspect of workplace design.

Table 5: The global priority weights of all factors concerned

Main factors label	Main factors priority local/global weights	Sub-factor label	Sub-factor local weights	Sub-factor global weights
B1	0.595	C1	0.267	0.159
		C2	0.126	0.075
		C3	0.337	0.201
		C4	0.117	0.070
		C5	0.153	0.091
B2	0.183	C6	0.122	0.022
		C7	0.161	0.029
		C8	0.156	0.029
		C9	0.149	0.027
		C10	0.414	0.076
B3	0.222	C11	0.205	0.046
		C12	0.144	0.032
		C13	0.066	0.015
		C14	0.184	0.041
		C15	0.161	0.036
		C16	0.118	0.026
		C17	0.122	0.027