

Hanc, M., McAndrew, C. and Ucci, M. (2018). Conceptual approaches to wellbeing in buildings: a scoping review. *Building Research & Information*.

Appendix

Table A1. Description of wellbeing conceptual themes used in the review

Wellbeing theme	Description
Environmental Satisfaction, Quality and / or Comfort (ENV)	Environmental satisfaction is defined by Ibern et al. (2013) as the subjective appraisal of the objective qualities of an environment. This is grounded in judgement about how much the environment meets the users' needs and expectations. We adopt Shin's (2015) definition of environmental comfort as the 'physical/physiological sensation and perception of discrete environmental stimuli from one's immediate surroundings' (p. 4).
Hedonic or Subjective Wellbeing (HED)	Historically associated with 'happiness', Ryan and Deci (2001) note subjective wellbeing 'consists of three components: life satisfaction, the presence of positive mood, and the absence of negative mood, together often summarized as happiness' (p. 144). It is characterised in contemporary literature as the balance of positive / negative affect, the evaluation of satisfaction with various domains of life (e.g. work, leisure), and/or global life satisfaction (Keyes, Shmotkin, & Ryff, 2002). Life satisfaction has been described as the 'hallmark' of subjective wellbeing (Diener et al., 1985), defined by Shin and Johnson (1978) as 'a global assessment of a person's quality of life according to his chosen criteria' (p. 478). Tatarkiewicz (1976) has noted that 'happiness requires total satisfaction, that is satisfaction with life as a whole' (p. 8). Quality of life is a similarly broad term used to represent "how well human needs are met or the extent to which individuals or groups perceive satisfaction or dissatisfaction in various life domains" (Costanza et al., 2007, p. 267).
Physical Health (PH)	This category refers to physical health, which we view through the definitional lens of Veenhoven (2008) as the "absence of illness or defect" (p. 450). As Veenhoven notes, physical health is an objective measure attained through medical assessments or subjective self-reports.
Mental Health (MH)	Ill-being (which has also been characterised as psychological distress) has been noted to include anxiety, depression and other negative effects (Headey and Wooden, 2004). This paper excludes conditions with a more enduring pathology such as schizophrenia and bi-polar disorders.
Social Wellbeing (SOC)	Social well-being has been characterised along the dimensions of social integration, social contribution, social cohesion, social actualisation and social acceptance (Keyes, 1998). Recent definitions have included the notion of 'social capital' (see for instance, Helliwell & Putnam, 2004).
Productivity and Cognitive Performance (PRO)	Although there is no single accepted definition of productivity, there is consensus that productivity must be defined in terms of a ratio of output variables to input variables (Cascio, 1987; Mahoney, 1988). Conversely, cognitive performance is defined as the capacity to perform mental processes, this extends across a variety of basic cognitive functions such as reasoning, understanding, remembering and problem solving (Bernstein, Penner, Clarke-Stewart, & Roy, 2003).
Eudaimonic Wellbeing (EUD)	Traditionally connected with the term 'human potential' (see Ryan & Deci, 2001), today psychological well-being is described as the 'perception of engagement with existential challenges of life' (Keyes, Shmotkin, & Ryff, 2002, p. 1007). This has been characterised as a sense of control or autonomy, feeling of meaning and purpose, personal expressiveness, feelings of belongingness, social contribution, competence, personal growth, and self-acceptance.
Other	This categorisation is used to capture conceptualisations and/or proxies of wellbeing that are not included in the above.
Unspecified	The authors of the paper do not provide a definition or detail on how they operationalised wellbeing.

Table A2. Wellbeing and buildings: Conceptual themes and subthemes used by the papers included in review

PAPER CITATION / CONCEPTUAL SUBTHEMES	Conceptual themes								
	ENV Environmental Quality, Satisfaction and/or Comfort	EUD Eudaimonic	HED Hedonic or Subjective	MH Mental health	O Other	PH Physical health	PRO Productivity or cognitive performance	SOC U Social Unspecified	
Abell, Alhusban, Alhusban, & Lurasi (2013)								1	
Agha-Hosseini, El-Jouzi, Elmualim, Ellis, & Williams (2013)									
Building Design and Facilities	1								
Control	1								
Indoor Environmental Quality	1								
Productivity							1		
Satisfaction			1						
Wellbeing								1	
Alvaro, Wilkinson, Gallant, Kostovski, & Gardner (2016)									
Building Design and Facilities	1								
Comfort	1								
Frailty, mobility and safety						1			
Illness						1			
Intention to Quit					1				
Other	1			1				1	
Participation and Interaction								1	
Perceptions of Improvement					1				
Personal Growth		2							
Psychological States and Traits				1					
Satisfaction			1						
Sense of Inclusion								1	
Stress				1					
Bluyssens, Janssen, Van den Brink, & De Kluizenaar (2011)									
Affect			1						
Building Design and Facilities	1								
Control	1								
Control/Autonomy		1							
Familial Context								1	
Indoor Environmental Quality	1								
Negative Spatial Experiences								1	
Other								1	
Participation and Interaction								1	
Psychological States and Traits				1	1				
Self-reported symptoms						1			
Sick Building Syndrome						1			

Conceptual themes									
PAPER CITATION / CONCEPTUAL SUBTHEMES	ENV Environmental Quality, Satisfaction and/or Comfort	EUD Eudaimonic	HED Hedonic or Subjective	MH Mental health	O Other	PH Physical health	PRO Productivity or cognitive performance	SOC	U Unspecified
Butala & Muhič (2007)									
Affect			1						
Building Design and Facilities	1								
Cognitive Performance							1		
Indoor Environmental Quality	1								
Productivity							1		
Self-reported symptoms						2			
Stress				1					
Denk, Jimenez, & Schulz (2015)									
Affect			1						
Cognitive Performance							1		
Comfort	1								
Psychological States and Traits				1					
Easterbrook & Vignoles (2015)									
Affect			1						
Participation and Interaction								1	
Sense of Inclusion								1	
Fostervold & Nersveen (2008)									
Affect			1						
Building Design and Facilities	1								
Cognitive Performance							2		
Indoor Environmental Quality	1								
Psychological States and Traits				1					
Satisfaction			1						
Self-reported symptoms						1			
Stress				1					
Kang, Lee, Kim, & Kim (2014)									
Building Design and Facilities	1								
Indoor Environmental Quality	1								
Managerial					1				
Other								1	
Participation and Interaction								1	
Sense of Inclusion								1	
Lamb, Kwok, & Walton (2014)									
Affect			1						
Cognitive Performance							1		
Illness						1			
Indoor Environmental Quality	1								
Other	1								

Conceptual themes									
PAPER CITATION / CONCEPTUAL SUBTHEMES	ENV Environmental Quality, Satisfaction and/or Comfort	EUD Eudaimonic	HED Hedonic or Subjective	MH Mental health	O Other	PH Physical health	PRO Productivity or cognitive performance	SOC	U Unspecified
Personal Growth		1							
Productivity							1		
Satisfaction			1						
Self-reported symptoms						2			
Stress				1					
Lee, Je, & Byun (2011)									
Building Design and Facilities	1								
Frailty, mobility and safety						1			
Muhammad, Sapri, & Sipan (2014)									
Building Design and Facilities	1								
Indoor Environmental Quality	1								
Learning							1		
Participation and Interaction								2	
Productivity							1		
Neuner and Seidel (2006)									
Control	1								
Happiness			1						
Indoor Environmental Quality	1								
Self-reported symptoms						1			
Newsham et al. (2009)									
Affect			1						
Building Design and Facilities	1								
Familial Context								1	
Indoor Environmental Quality	1								
Satisfaction			1						
Self-reported symptoms						2			
Stress				1					
Pelenur & Cruickshank (2013)									
Affect			1						
Other	1								
Rioux (2005)									
Other	1								
Participation and Interaction								1	
Satisfaction			1						
Shafaghat et al (2014)									
Building Design and Facilities	1								
Control/Autonomy		1							
Cost Efficiency					1				
Illness						2			

Conceptual themes									
PAPER CITATION / CONCEPTUAL SUBTHEMES	ENV Environmental Quality, Satisfaction and/or Comfort	EUD Eudaimonic	HED Hedonic or Subjective	MH Mental health	O Other	PH Physical health	PRO Productivity or cognitive performance	SOC	U Unspecified
Indoor Environmental Quality	1								
Negative Spatial Experiences								1	
Participation and Interaction								1	
Sick Building Syndrome						1			
Stress				1					
Steemers & Manchanda (2010)									
Indoor Environmental Quality	1								
Satisfaction			1						
Self-reported symptoms						1			
Tavakkoli, Asaadi, Pakpour, & Hajiaghababaei (2015)									
Illness						1			
Personal Wellbeing									1
Psychological States and Traits				1					
Satisfaction			1						
Thatcher & Milner (2014)									
Satisfaction			1						
Absenteeism					1				
Affect			1						
Building Design and Facilities	1								
Other		1							
Presenteeism					1				
Productivity							1		
Sense of Inclusion								1	
Sick Building Syndrome						1			
Torrington (2007)									
Affect			1						
Building Design and Facilities	1								
Control	1								
Familial Context								1	
Frailty, mobility and safety						1			
Other	1	1		1					
Participation and Interaction								1	
Satisfaction			1						
Stress				1					
Turunen et al. (2014)									
Cognitive Performance							1		
Illness						1			
Indoor Environmental Quality	1								
Learning							2		

PAPER CITATION / CONCEPTUAL SUBTHEMES	Conceptual themes								
	ENV Environmental Quality, Satisfaction and/or Comfort	EUD Eudaimonic	HED Hedonic or Subjective	MH Mental health	O Other	PH Physical health	PRO Productivity or cognitive performance	SOC Social	U Unspecified
Self-reported symptoms						2			
Wellbeing									1
Wilson et al. (2014)									
Building Design and Facilities	1								
Psychological States and Traits				1					
Self-reported symptoms						1			
Wu & Noy (2010)									
Indoor Environmental Quality	1								
Grand Total	37	7	21	15	7	25	14	21	3

Additional references

Please also refer to the references listed in the published article

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