CONCEPTUALISING A VIRTUAL BUILT HEALING ENVIRONMENT

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ABSTRACT

The need for an understanding of how innovative solutions can be used during the design of new hospitals is growing and many National Health Service (NHS) infrastructures are facing new challenges. For instance, in 2001 the first NHS privately financed hospital, the Cumberland Infirmary in Carlisle faced problems that included: overcrowding due to inadequate bed space provision; overheating due to the design and use of a glass atrium, with maximum temperatures reaching over 35°C; and collapsed ceilings. Furthermore, the British Broadcasting Service (BBC) (2007) reported that NHS Trusts in England were struggling to meet current hygiene standards. This highlights the existence of design challenges in these hospitals in the creation of Built Healing Environments (BHEs) that enhance patient wellbeing, staff performance, operational efficiency and medical outcomes,

There have been considerable advances in Construction Information Technology (IT), especially in Computer Aided Design (CAD), Building Information Modelling (BIM), Parametric Modelling and Environmental Simulation, 3D Visualisation, Virtual Reality (VR) and Augmented Reality (AR). This paper aims to review the advances in CAD and BIM applications during healthcare infrastructure planning, design and construction. Their application to healthcare infrastructure problems will be reviewed in order to conceptualise a Virtual Built Healing Environment (VBHE). The VBHE would provide the opportunity for a comprehensive knowledge base of various healthcare infrastructure-related innovative design solutions and the construction IT software, hardware and equipment needed to develop such solutions, including a Healthcare Infrastructure Digital Mock-Up Facility (HIDMUF).

Keywords: Built Healing Environment (BHE); Innovative Design; Virtual Healing Environment (VHE)