JOINTING DESIGN IN OPEN PLAN SYSTEM FOR OFFICE

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ABSTRACT

Most modern offices use open plan office system due to the flexibility of the product. The open plan system (OPS) can be customized from low screen to high screen and can be installed and dismantled according to the office needs. According to MIDA (Malaysian Industrial Development Authority) the total sales for Malaysian office furniture industries was RM1.6 billion in 2003 of which 7.2% (115. million) came from sales generated from the open plan office system. The sales report showed the importance of the open plan office system in creating the office environment. Since the demand of OPS is increasing, effective ways of assembling the system is required. Most OPS uses bolts and nuts to joint the panels. However, this jointing system requires many parts and the assembly process is time consuming. A survey carried out in this study on OPS manufacturers identified the main criteria for the jointing system design which is to increase the efficiency during the assembly process. An important function of the jointing system is to ensure that the system is flexible during the assembly process. Based on these findings, various jointing system that could satisfy all these requirements were considered. Two designs of the jointing system were proposed. Simulation studies were carried out on the proposed designs to determine the ease of assembly, number of parts, weight, time taken for assembly and the strength of the joints. The research was limited to the tile system. Both design concepts were based on the snap fit concept. They were found to be better than the current design not only in terms of ease of assembly but also efficiency.

Keywords:Open Plan System (OPS), Tile System, Jointing System, Efficiency and Snap-fit

1. INTRODUCTION

The Open Plan System (OPS) is widely used in the Malaysian office environment. Miodino (1998) describes the system as one dividing walls and equipment to create, organize and decorate office space with the highest level of practicality and aesthetic value. The material of the frame structure can be made of modular elements from aluminum extrusion and the wall panels can be made of glass, MDF board and metal. The system is flexible and can be modified or extended to meet the changing requirement of the office because it comes in various heights from low, medium, high and full screen. Figure 1 shows an example of OPS manufactured by a local manufacturer.

Figure 1: Open plan office system. (Source: http://www.bristol.com).

The research and development (R&D) in open plan office jointing system is still in the preliminary stages. Most of the present researches emphasize on the physical aspect of the design. Most of the manufacturers and designers are only interested in developing the appearance of the frame rather than the