

ABSTRACT

Material Handling Equipment (MHE) is a tool which function is to reduce the workload of a job. However, the unloading of raw materials process at receiving area of PT XYZ still done by manual method without MHE, especially in the process of lowering wooden beams from supplier trucks. Because the truck dimensions are high enough and it is difficult for workers when giving it to workers who are beneath to keep the wood will not dropped and damaged. With the number of wooden beams reach 10,000 per truck, it will cause Musculoskeletal Disorders (MSDs) occur. In addition, with the limited number of workers definitely makes the unloading process can take long time and it will not be efficient. Therefore, it necessary to design a MHE which can make the unloading process more effective and efficient, and the risk of MSDs can be reduced in workers on trucks. The design process of MHE is carried out using the Ergonomic Function Deployment (EFD) approach that applies ergonomic aspects, namely EASNE (Effective, Safe, Healthy, Comfortable, Efficient) to create ergonomic tools. From this study, an ergonomic proposed MHE concept was produced which able to rotate 360°, the height is adjustable, and makes the posture of workers more effective, which previously has a REBA score of 9 when not using MHE, to 5 after using the proposed MHE. In addition, the use of this proposed MHE is able to make the process shortened when lowering the raw material which previously can reach 3 seconds, and becomes 0.54 seconds using the proposed MHE. These results are obtained from the simulations that carried out using software.

Key Word : Material Handling Equipment, Ergonomic, Musculoskeletal Disorders, Ergonomic Function Deployment, EASNE, REBA