

## A Development of Storage System For Sub-unit Goods: A Case Study of Construction Material Company

Narawut Khunphuang<sup>1,a</sup>, Chukree Daesa<sup>1,b,\*</sup>, Wanida Rattanamanee<sup>1,c</sup>,  
and Kunlapat Thongkaew<sup>1,d</sup>

<sup>1</sup> Department of Industrial and Manufacturing Engineering, Prince of Songkla University, Songkhla 90110, Thailand

E-mail: <sup>a</sup>6310120064@psu.ac.th, <sup>b,\*</sup>chukree.d@psu.ac.th (Corresponding author),  
<sup>c</sup>wanida.r@psu.ac.th, <sup>d</sup>tkunlapat@eng.psu.ac.th

**Abstract.** The objective of this research is to improve the warehouse efficiency of building material trading companies. The objective was to reduce the wasted time working in the sub-storage system by 35%. Definition of Sub-units are items ordered in big numbers from a manufacturer, such as sacks, cartons, and huge rolls. However, in order to fulfill the expectations of clients, the corporation must offer in a variety of forms. Before to the improvements in the sub-unit storage system, the receiving, packaging, and storing processes took 11 hours. The researcher increased warehouse efficiency by improving the warehouse layout in the receiving and storing procedures during the first phase. The time can be reduced to 8 hours 30 minutes, or 21.94 percent. as well as to best support the sub-unit packaging system work properly The company's product packaging has been delayed as a consequence of designing and producing product packaging solutions. resulting in a production volume that is smaller than the demand, Products with a high sales frequency are considered in designing the product packaging system, and they can be categorized into two categories: bagged products, such as cold pump screws (rings, nuts, screws), and round head and head screws. The product unit of length is enormous fiber rope and transparent rubber hose, Before the improvement, the average production capacity for bag unit items was 1.44 min per bag. A giant rope with a capacity of 1.39 min per strand and a transparent rubber hose with a capacity of 1.23 min per line, After improvements in The capacity of the bag packing machine has increased to 0.03 min/line and product packing, with a unit length of 0.2 minutes per line. After improvements and comparisons, it was discovered that actions for the sub-unit storage system can reduce process time by 37%.

**Keywords:** warehouse improvement, Packaging machine, reduce processing time