



6th International Conference on Applied Human Factors and Ergonomics (AHFE 2015) and the
Affiliated Conferences, AHFE 2015

Work ergonomic analysis at the quality material inspection station in a graphic industry

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Abstract

This paper is based on an ergonomic analysis of quality review station in a printing company in the southernmost of Brazil. Analyses were made on the issues of environmental comfort, injury risks and pain causes identified by workers in the sector, five women. After analyzing the critical points of acoustic and thermal comfort, concerning temperature variation in different seasons, not taking regular breaks to rest, which is causing muscle fatigue in the joints of the upper limbs, and were appointed to conduct task not directly related to their activity, which increases significantly the carrying out time to reviewing and so left no time for breaks. They take painkillers and anti-inflammatory often. Suggestions were made to minimize the risk of accidents and musculoskeletal injuries, improve working conditions as comfort reduced time to perform the task and include rest breaks during working hours without loss to production. Including pauses enables stop taking medicines.

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Peer-review under responsibility of AHFE Conference

Keywords: Printing; Production; Revision workers; Revision post; Thinning; Work ergonomic analysis; Industry; Plant

1. Introduction

This is an end-of-course paper for the lato sensu course post-graduate course on Ergonomics at Federal University of Rio de Janeiro / UFRJ. I hold a BA in Industrial Design.

Analysis regarding environmental comfort, risk of lesion amongst the employees and the causes of the pains and aches described by the employees of revision sector of this very graphic industry were made.

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Fig. 1. Brazil’s map pointing Gráfica Lito’s location.

2. Presentation of the company that was analyzed

Gráfica Lito is located in Cachoeirinha, which is in the southernmost state of Brazil, as Fig. 1 shows.

3. General analysis

3.1. Loss of material

Many problems may occur throughout the processes, but it is more common during the printing process. A great deal of cardboard sheets is discarded upon revision. In some instances deliveries are made with up to 3% less packages than what was initially ordered.

4. In-depth analysis

The reviewers are five women and it is not unusual to find the plant supervisor helping them once the job must be carried out as quickly as possible in order to feed the gluing machines, which operate within a speed of 15 to 100 thousand boxes per hour. The company does not have engineers or safety technicians. Find Fig 2

4.1. Layout

Very close to where the gluing machine is feed, is the sector of revision. In the table on the right, material that does not require revision is usually printed.

Next to revision is the thinning. These two sectors are separated by a corridor where personnel, material and a car carrying with shreds walk through or are transported. The shreds are disposed of at a garbage alley every 60 minutes. Check fig 3

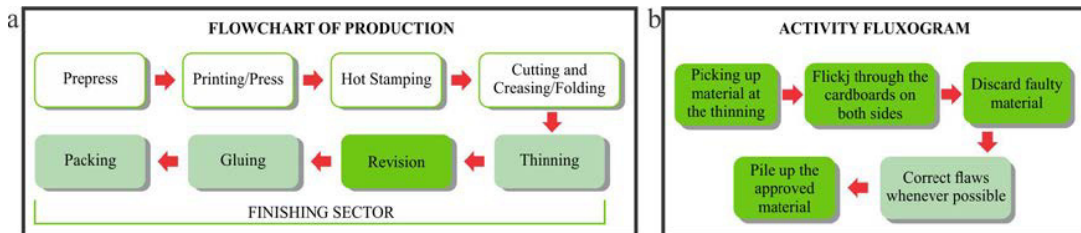


Fig. 2. (a) Production Flow; (b) Activity Flow.

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