



**SAFETY AND RISK EVALUATION IMPLEMENTATION AT SHEET  
METAL STAMPING INDUSTRY USING HIRARC MODEL**

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## **ABSTRACT**

Sheet metal stamping has been identified as one of the most hazardous and high risk process in the world of manufacturing industries. In the competitive and unsteady economic situation, it is a challenging task for manufacturing industry to face it. This project was carried out at AEL Engineering Sdn. Bhd. in Parit Buntar, Perak. The company is a precision metal stamping supplier of metal components and assemblies. Their metal stamping presses sizes range from 5 tons to 800 tons. This project is focused on 200 tons and 150 tons departments only. A systematic analysis based on Occupational Safety and Health (OSHA) standard was used to create a model of Hazard Identification, Risk Assessment and Control (HIRARC) at the stamping department. The tools of HIRARC process were used to determine hazardous process / areas for department operation and maintenance of observation, safety analysis, workplace inspection, safety checklist and high risk investigation. Initial risk assessment was conducted by classifying the hazards in three types of level, such as High, Medium and Low. The severity of hazards was calculated to estimate the likelihood it will happen and to decide which process/area needs to be applied control measures. The recommended control measures were implemented in the departments followed by administrative and engineering measures. The risk assessments were repeated and the results were analyzed. From the analysis of risk assessment for a total of eight hazardous processes/areas, shows that a reduction of 29.6% from the high risk level of 200 tons and 17% at 150 tons. This shows that promotion of safety and health should concentrate on important function such as production to prevent the occurrence of accidents.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of Project

The manufacturing industry is one of the major sectors that help in the growth of the economy in Malaysia as shown in Figure 1.1. Productivity growth and overall performances are important aspects of a company to prosper. The company's performances are affected by problems such as the work distance traveled, machine handling, workers' behavior and the safety level of the department [8,9]. Therefore, this study will look into how safety management for the working layout can improve the process, resources, and energy efficiency with the aim to improve the production system performances



Figure 1.1: Monthly Manufacturing Statistic, Malaysia. [3]