

ABSTRACT

PT XYZ is a manufacturing industry specializing in roof tile production in Jatiwangi, Majalengka. In the roof tile production process, PT XYZ's workers have been decreasing annually. This decline in the workforce affects the company's ability to meet market demand. Since the production process is still predominantly manual, a solution has been proposed in the form of automation. The automation involves designing a conveyor integration system to address the labor shortage. This system is employed in the inspection process, which is crucial for determining the quality of the tiles.

Therefore, an effective calculation of the roof tile inspection process was conducted for both the initial and proposed conditions. In the initial condition, the inspection process is carried out by human operators using visual inspection. In contrast, the proposed condition utilizes a conveyor integration system with three different conveyor speeds: 420 rpm, 600 rpm, and 750 rpm. This study compares the effectiveness of the initial and proposed conditions.

To determine the effectiveness, the Overall Equipment Effectiveness (OEE) method was used. The OEE method includes factors such as availability rate, performance efficiency, and quality rate. The OEE value obtained was 84% in the initial condition, and in the proposed conditions with speeds of 420 rpm, 600 rpm, and 750 rpm, the values were 41,17%, 42,62%, and 41,78% respectively. Additionally, a cost calculation for the machine's operational period was performed using the Life Cycle Cost (LCC) method, including initial equipment, operational, and maintenance costs. The results of comparing the effectiveness values from the OEE and LCC calculations will be used by stakeholders for further decision-making.

Keywords – Overall Equipment Effectiveness (OEE), Life Cycle Cost (LCC), Conveyor Integration Process, Labor, Quality