

STUDI DAN PENGENDALIAN KEBISINGAN PADA RUANG KANTOR

STUDI KASUS PABRIK KERTAS

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INTISARI

Paparan kebisingan di area industri seperti pabrik kertas dapat menjadikan bahaya bagi pekerja yang berada di area tersebut seperti kantor. Beberapa pekerja dari sebuah kantor pabrik kertas mengeluhkan kebisingan didalam kantor yang mencapai 54 dBA akibat dari mesin produksi *single face* di ruang mesin, sehingga membuat emosi pekerja meningkat. Pengendalian kebisingan pada ruang mesin dilakukan menggunakan pemetaan kebisingan sebagai peninjau kebisingan. Hasil menunjukkan bahwa tingkat SPL didekat partisi kantor bernilai 68,5 dBA merepresentasikan nilai gelombang akustik yang ditransmisikan menuju ruang kantor. Pengendalian material insulasi suara pada partisi dinding, kaca, dan partisi komposit kantor dilakukan dengan mengukur *Transmission Loss* (TL) dan *Sound Transmission Class* (STC) *existing*. Nilai TL kaca diperoleh sangat kecil sehingga diperlukan perbaikan material. Hal lain ditunjukkan oleh nilai STC dinding, kaca, dan partisi komposit bernilai 20, 6, dan 17. Rekomendasi desain material partisi kantor dilakukan menggunakan *software* INSUL 9.0 yaitu mengganti kaca *existing* dengan kaca laminasi *double glazing* dan menambah material gipsum pada sisi dinding luar partisi kantor. Hasil menunjukkan nilai rating STC partisi komposit naik yaitu 23, dan SPL ruang kantor mencapai 38 dBA sehingga telah memenuhi syarat Noise Criteria (NC) ruang kantor yaitu 35-40.

Kata kunci— Kebisingan pabrik, pemetaan kebisingan, *transmission loss*, *sound transmission class*, kantor

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STUDY AND NOISE CONTROL OF PAPER FACTORY OFFICE

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ABSTRACT

Noise exposure in industrial area like paper factory can be harmful for the employees whom are working at outdoor area as well as in offices. Some employees of paper factory working in the offices with open-plan office system are complaining about the noise in the office during the machines are in operating condition. This comes about as the noise makes them hard to get focused at their jobs. It is found that the closest noise source position from the office produces 79 dBA while the noise level of 54 dBA is present in the office. To deal with this situation, a noise mapping was developed based on measurement SLM. The noise mapping can help to comprehend the required noise reduction to enable offices being comfortable and safe for employee to work. Subsequently, the transmission loss (TL) of office walls was evaluated by measuring the noise level spectrum inside and outside of the offices while T30 (the reverberation time) values were also measured in the offices for room absorption assessment as it affects the TL values. The two approach can lead to get *Sound Transmission Class* (STC) and a systematical way for improving the sound insulation of the offices particularly forming a basis to choose suitable materials and wall constructions. In this research, INSUL software is employed to calculate the TL of the proposed wall design. The results show that the improvement of existing partition insulation using double glazing laminated glass and gypsum can meet the preferable noise level inside of the offices that is 38 dBA with new STC value is 23.

Keywords — noise industry, noise mapping, transmission loss, sound transmission class, office

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