

## **ABSTRACT**

*Room comfort is an important element that is expected in a room. There are some important factors that affect comfort, one of them is air circulation in a room. Air inflow in a room among others is generated by window louvre. Therefore, air flow measurement is needed on louvres to ensure how quick the air velocity entering the room, so that the spread profile can be examined. In this research louvre modeling is done with two different parameters. The first parameter will simulate 14 louvre types that has been placed in a wind tunnel with the intention of finding out velocity profile in the louvre, meanwhile the second parameter will simulate airflow in a room with the first parameter's velocity profile result as the input. Both conditions can be simulated with CFD using OpenFOAM (Open Field Operation And Manipulation). That simulation is an outdoor room airflow modeling (Outdoor Airflow) and indoor room airflow modeling (Indoor Airflow). formulation of wind opening model configuration method for CFD simulation has been formulated, It is then generated 14 louvre models : top hung window 15<sup>0</sup>, top hung window 30<sup>0</sup>, bottom hung window 15<sup>0</sup>, bottom hung window 30<sup>0</sup>, right hung window 15<sup>0</sup>, right hung window 30<sup>0</sup>, left hung window 15<sup>0</sup>, left hung window 30<sup>0</sup>, louvre 15<sup>0</sup>, 30<sup>0</sup>, 45<sup>0</sup>, 60<sup>0</sup>, 75<sup>0</sup> and 90<sup>0</sup>. With the process to ensure that louvre velocity profile (Fix Profile) in a building inside the wind tunnel equals with the velocity condition in a room in the indoor air simulation.*

*Keyword : CFD, Airflow, Louvre, Wind Tunnel, Louvre Model, OpenFOAM*