

# **Structural Analysis of Laterally Aerated Moving Bed (LAMB) Dryer by using Robot Structural Analysis (RSA) Professional 2018**

## **ABSTRACT**

The structural design of Laterally Aerated Moving Bed (LAMB) dryer is subjected to buckling effects due to the loads of the paddy bed, self-weight and static pressures by the air blower to overcome the air resistance in the paddy bed, perforated tube and the bed chamber perforated wall. The dryer structural type is a spatial complex structure where the boundary conditions are not very clear, thus the Robot Structural Analysis (RSA) Professional 2018 is used to determine the critical values of loads when the overall structural elements instability occurred to form buckling. The RSA analysed the global buckling of a structure to find the critical coefficient value to be multiply with the case load for the critical buckling load determination. Three different model of dryer structural designs were prepared and analysed by RSA to find the buckling critical coefficient values ( $\alpha_{cr}$ ), displacements (mm), reactions (N) and moments (Nm). All structural design model was designed with similar type of materials, different sizes and geometrical arrangements. The RSA results within the three structural design models were compared. The structural design model with the best buckling coefficient values with minimum displacement had been selected for the actual LAMB dryer structural construction.