

PUSAT PENGAJIAN KEJURUTERAAN AWAM UNIVERSITI TEKNOLOGI MARA CAWANGAN PULAU PINANG



Fire Rating Test of Precast Concrete Wall Panel Made from Waste Materials

Noorsuhada Md Nor, Soffian Noor Mat Saliah, Amril Hadri Jamaludin, Amir Khomeiny Ruslan, Ahmad Syauqi Md Hassan, Mohd Azrizal Fauzi

The fire rating test of precast concrete wall panel made from waste materials project was successfully carried out through a collaboration between UiTM and the Public Works Department (JKR). The main objective was to evaluate the fire resistance performance of precast concrete wall panels produced using waste materials. This study emphasised both fire safety and sustainability, aligning with the national agenda to reduce reliance on conventional raw materials while promoting circular economy practices in construction.

The fire test was conducted in accordance with international standards, where the panel was exposed to high temperatures in a specialised furnace to assess their structural integrity and resistance time. The results revealed that the waste based precast concrete panel was able to withstand heat exposure for more than two hours before significant structural failure occurred. This performance was comparable to conventional panels, proving that the use of waste materials does not compromise essential safety requirements. The total cost incurred for this project was approximately RM 40,000, covering all important aspects to ensure this project can be accomplished.

The project was successfully completed and has certified from SIRIM Sdn. Bhd. This project has provided positive insights for the construction industry, particularly in terms of safety and sustainability.

