Waste to Green Eco-Construction

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Waste to Green Eco-Construction project is a novelty innovation in producing construction material that utilises recycled material to reduce the use of earth elements like limestone/sand and reduce the severity of plastic pollution. Our prototype, Eco-Bricks uses recycled materials like Crushed Recycled PP and HDPE. Ash from Paddy Husk (PH) and Coconut Husk (CH) was mixed to replace cement due to its silica contents. The partial cement replacement mixture (initial): 1. PH cement - Cement/Sand/Paddy Husk Ash 2. HDPE cement- Cement/Sand/Paddy Husk Ash/HDPE 3. PP cement- Cement/Sand/Paddy Husk Ash/PP The full cement replacement mixture with alternative recycled material (continuity): 1. PH - Paddy Husk Ash/ Sand. 2. CH - Coconut Husk Ash/Sand. 3. PH HDPE - Paddy Husk Ash/HDPE/ Sand. 4. CH HDPE - Coconut Husk Ash/HDPE/ Sand. Compression Strength, Absorption and Efflorescence Test were conducted in accordance with Malaysia Standard MS 7.6: 1972 and British Standard BS 3921:1985. Fire tests were also conducted. From the results, all materials can be used for construction. Except that, due to the strength and absorption rate the PP bricks it cannot be used for load bearing walls. The PH Cement, PH:SAND, PH:HDPE:SAND and CH:HDPE:SAND bricks can be used for heavy duty and load bearing applications. The rest are common building bricks. PH:SAND, PH:HDPE:SAND , CH:SAND and CH:HDPE:SAND bricks have low absorption rates and are suitable as heavy duty bricks. All bricks can last 1 hour fire rating. The test was not carried out for more than 1 hour due to fire risk. All bricks showed no sign of efflorescence

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