

**ASSESSMENT OF BUTT JOINT POSITIONS ON DRY BOARD IN PSSDB
WALL PANELS WITH WINDOW OPENING**

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- vii. Seperti yang tuan/puan sedia maklum tuan/puan perlu membentangkan kertas kerja di Seminar Hasil Penyelidikan IRDC setelah projek tamat dijalankan nanti.
- viii. Kertaskerja boleh dibentangkan di seminar selain yang dianjurkan oleh IRDC setelah 75% deraf awal laporan akhir projek dihantar ke IRDC untuk semakan. Walau bagaimana pun, tuan/puan perlu membuat permohonan kepada Institut Penyelidikan, Pembangunan dan pengkomersilan.
- ix. Tuan/Puan perlu membelanjakan 50% daripada geran penyelidikan yang telah diluluskan bagi projek tuan/puan dalam tempoh 6 bulan pertama projek berjalan.
- x. Pihak tuan/puan dikehendaki mengemukakan Laporan Kemajuan kepada IRDC 3 kali setiap tahun iaitu pada bulan April, Ogos dan Disember sepanjang penyelidikan tuan/puan berjalan. Laporan Akhir perlu dihantar sebaik sahaja projek penyelidikan disiapkan. Format menulis laporan akhir boleh diperolehi di IRDC.

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LAPORAN AKHIR PENYELIDIKAN "ASSESSMENT OF BUTT JOINT POSITIONS ON DRY BOARD IN PSSDB WALL PANELS WITH WINDOW OPENING"

Merujuk kepada perkara di atas, bersama-sama ini disertakan 3 (tiga) naskhah Laporan Akhir Penyelidikan bertajuk "ASSESSMENT OF BUTT JOINT POSITIONS ON DRY BOARD IN PSSDB WALL PANELS WITH WINDOW OPENING".

Sekian, terima kasih.

Yang benar,



SITI HAWA HAMZAH

Ketua

Projek Penyelidikan

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ABSTRACT

Profiled steel sheet dry board or PSSDB system is an innovative composite construction system with application as an alternative to flooring, wall unit and roofing system. In this study, load-bearing walls with window opening were constructed using PSSDB. The investigation was carried out experimentally to determine the structural behaviour and to see the arrangement effect (vertical and horizontal) of butt joint in the dry boards. The PSSDB load bearing wall system, formed as double skinned structural element, consists of two dry boards (Cemboards) attached to profiled steel sheet (Bondek II), the core of panel, using self-tapping self-drilling screws.

Several aspects such as literature review, testing method and analysis of results were included in this research. The samples tested were three (3) numbers of PSSDB walls with window opening and vertical butt joint (VBJ) in the dry boards, and three (3) numbers of PSSDB walls with window opening but with horizontal butt joint (HBJ) in the dry boards. The size of each sample is 1000 mm high x 1320 mm wide x 78 mm thick with window opening of size 400 mm x 400 mm x 78 mm. The connectors were fixed at a 100 mm center to center in the longitudinal axis. The samples were subjected to axial compressive load and comparisons were made between the two sets of samples. The average value of the ultimate load capacity for PSSDB wall with vertical butt joint was found to be 212.1 kN, while that for the samples of PSSDB wall with horizontal butt joint was 201.8 kN. The maximum lateral deflection values for both types of PSSDB walls were 10.0 mm and 9.3 mm respectively. Similarly, the vertical displacements are 9.2 mm and 11.2 mm respectively.

The Young's modulus values obtained from bending stress-principal strain analysis for PSSDB with VBJ were 1750 GN/m² and 40 GN/m² for PSS and cemboard respectively, whilst for PSSDB with HBJ, the values are 700 GN/m² and 9 GN/m² respectively. Significant effect of vertical arrangement of butt joint in dry board was seen in the reduced number of cracks by about 10% in comparison to that with horizontal butt joint.