

**PERKUATAN BALOK DENGAN METODE *CARBON FIBER REINFORCED POLYMER (CFRP) WRAP JACKETING* PASCA PENAMBAHAN  
ESKALATOR PADA PROYEK TRANS STUDIO MALL CIBUBUR**

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**INTISARI**

Pekerjaan struktur utama pada proyek Trans Studio Mall Cibubur telah selesai dilaksanakan, akan tetapi terdapat penambahan paket pekerjaan baru yaitu pemasangan eskalator yang menghubungkan antara lantai *Lower Ground* menuju lantai *Ground Floor*. Struktur yang sudah ada tidak direncanakan untuk menahan beban eskalator, sehingga dilakukan perkuatan untuk menahan momen lentur akibat penambahan eskalator.

Penelitian ini bertujuan untuk mengetahui kemampuan struktur dalam menahan momen lentur akibat penambahan eskalator, mengetahui penambahan kapasitas Pasca perkuatan serta mengetahui metode pelaksanaan perkuatan.

Penelitian ini meninjau tiga balok yang menjadi tumpuan eskalator yaitu balok B8 As 28/H-I lantai LG, balok B8R As 29/H-I lantai LG, dan B20 As 27/H-I lantai GF. Analisis perhitungan pada penelitian ini menggunakan balok persegi, dan untuk perhitungan momen lentur baru menggunakan aplikasi analisis struktur. Perkuatan struktur menggunakan metode *Carbon Fiber Reinforced Polymer (CFRP) Jacketing tipe Wrap*.

Hasil analisis dan pembahasan menunjukkan dari 3 Balok yang ditinjau, didapatkan bahwa balok B8 tidak mampu menahan momen ultimate (bahaya). Sehingga diperoleh hasil kapasitas kuat momen rencana mengalami penambahan sebesar 93,68% dari kondisi eksisting dan kuat geser nominal bertambah sebesar 54,93%, didapatkan kesimpulan bahwa balok B8 dapat memikul momen ultimate akibat penambahan eskalator.

Kata kunci : perkuatan, struktur balok, kapasitas, CFRP Wrap

***STRENGTHENING OF THE BEAM WITH JACKETING CARBON FIBER  
REINFORCE POLYMER (CFRP) WRAP METHOD AFTER THE  
ADDITIONAL OF ESCALATORS IN TRANS STUDIO MALL CIBUBUR  
PROJECT***

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**ABSTRACT**

*The main structural work of The Trans Studio Mall Cibubur project has been completed, however there is an additional assignment for the installation of the escalators that connects the Lower Ground Floor to the Ground Floor. The structure that has been done is not planned to hold the escalators load, it needs to be reinforced to hold the bending moment in addition of escalators.*

*This reaserch aims to study the structure's ability to withstand moments due to the addition of escalators, knowing the addition of post-capacity, and knowing the methods of implementing reinforcement.*

*This reaserch reviews three beams that become the pedestal of the escalators, the B8 As 28/H-I beam LG, the B8R As 29/H-I beam LG, and the B20 As 27/H-I beam GF. The analysis in this final project is a square beam and analysis structure aplication is used to determine new bending moments. Strengthening the structure using the Jacketing (CFRP) Wrap method.*

*The results of the analysis and discussion showed from 3 Beams, indicating that the B8 beam was not able to withstand bending moment (danger), so that after being reinforced, the capacity of nominal flexural strength increased by 93,68% from existing conditions and the capacity of nominal shear strength increased by 54.93%, so that beam B8 can carry a bending moment due to the addition of escalator.*

*Keywords: reinforcement, beam structure, capacity, CFRP Wrap*