



Slabstress

Gatwick Airport, South Terminal Baggage Facility

Client
Gatwick Airport

Engineer (Structures)
Bryden Wood

Principal Contractor
Vinci Construction

Post-tensioning Contractor
Freyssinet Ltd

Works Completed
September 2014



The £184M scheme to replace Gatwick Airport's pier 1 involves demolition of the old pier and construction of a totally new facility in its place. It will accommodate five aircraft of a larger size than can be accommodated at the existing pier and they will have direct access via an air bridge, improving turn around times.

The building is designed around the baggage handling system, a new £45M ergonomically efficient system which will increase capacity from 3800 to 4250 bags per hour. The design of the building had to respect the radar line and the required height reductions were achieved with the help of a post-tensioned slab at first floor level. This slab carries the terminal facility over the baggage handling area.

The PT slab has a total area of 6690m² and has been constructed in 12 pours. The slab is 375mm thick and some of the heavily loaded internal columns benefit from a 900 x 900 steel shear head. To allow unhindered access into the baggage area below, several of the supporting columns are omitted along the front face and, instead, the PT slab is supported from a steel roof truss via tension hangers.

The "L" shaped building measures 442 x 78.6m and typical grids are 12 x 12m.

The design relied heavily on BIM to identify clash detection and check access for maintenance. It also assisted in designing the baggage handling system to cope with various "what if" problem scenarios. The model also served as a useful training tool for the new staff prior to opening at the end of 2014.

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