

Zeitschrift: IABSE congress report = Rapport du congrès AIPC = IVBH
Kongressbericht

Band: 3 (1948)

Artikel: The terminal building at Dublin airport, Collinstown

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DOI: <https://doi.org/10.5169/seals-4104>

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Le bâtiment central de l'aéroport de Dublin

Das Aufnahmegebäude des Dubliner Flughafens

The terminal building at Dublin airport, Collinstown

KURT BILLIG

Chartered Civil Engineer, London

Collinstown airfield covers 267 acres, with 450 acres available for extension. Its main runway, a mile long, was put into service 1940 as a grass runway but it is now concreted. The other two runways are slightly shorter. The main buildings of the airport are the Terminal Building, a concrete hangar 140 ft \times 110 ft and a steel hangar 210 ft \times 110 ft.

The Terminal Building is a very striking structure and its architecture is regarded as one of the finest of its type in Europe. It is a monolithic reinforced concrete structure 380 ft long, 60 ft wide, and 65 ft high to the top of the control tower. See Fig. 1. It is curved in plan, convex to the airfield, to serve the maximum number of aircraft. The curved plan proved also advantageous during construction when a centrally placed derrick was able to deliver material to any part of the building. It is believed that Collinstown was the first airport with this type of curved Terminal Building which has since been widely adopted.

The structure rises in terraces from each end towards the central control room on the fourth floor, each terrace being used for promenades. See Fig. 2. The high central portion is separated from the lower wings by two expansion joints going right across the whole building from the foundations upwards. All drainage is provided internally.

The three main frames of the building run longitudinally and are curved to different radii. The beams between neighbouring columns are actually straight as the very slight difference did not warrant the additional expense for curved formwork. For the same reason the ribbed floors spanning across the building were kept parallel in each bay with a special panel to allow for the change in direction from bay to bay.

Interesting features in the detail design were : cantilever half-circular beams forming a promenade at the third floor level of each wing,

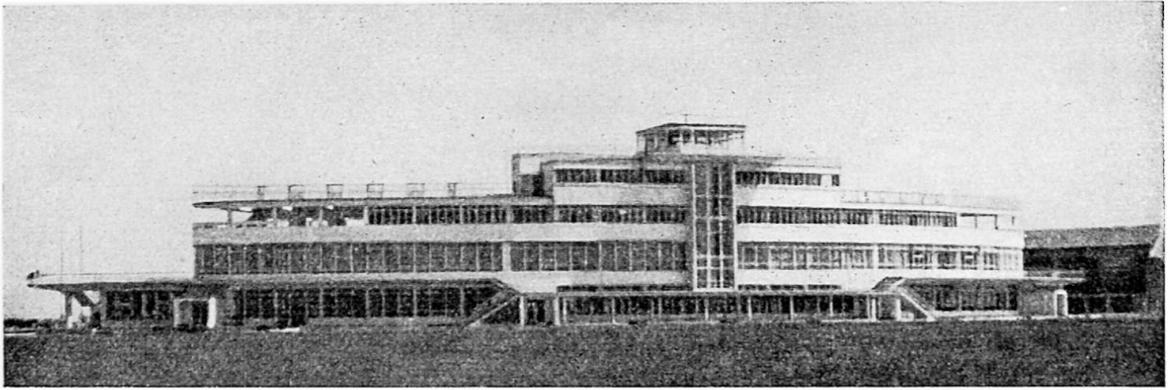


Fig. 1. Dublin Airport Terminal Building. Front elevation facing air field.

spiral stair cases, the high and very slender columns at the concourse, the cantilever roof over the control room carrying water tanks, etc.

The concrete specified and used was of high grade quality nominal mix 1 : 1 1/2 : 3, with a permissible compressive stress in bending of 1 100 lb per sq. in. The steel used consisted of cold worked 'Coverbond' bars which are manufactured by twisting two bars together with their ends remaining free and shortening in length during twisting. The tensile stress permitted in this reinforcement was 25 000 lb per sq. in in slabs and 20 000 lb per sq. in in ribbed sections. Ordinary mild steel was used in columns.

The structural part of the Terminal Building was completed 1940.

Architect : D. Fitzgerald, A.R.I.B.A., of the Board of Works, Dublin.

Contractor : Murphy Bros Ltd., Dublin.

Structural Design : The author of this Paper, for Messrs. Delap & Waller, Dublin.

Résumé

Le bâtiment de l'aérogare de Dublin, Collinstown, construit de 1939 à 1942, est une construction monolithique en béton armé de 115 mètres de longueur, 18 mètres de profondeur et d'une hauteur de 20 mètres du niveau du sol à la pointe de la tour de contrôle. Sa forme est courbe et sa convexité est tournée vers le terrain d'atterrissage, afin de desservir un plus grand nombre d'avions. Ce bâtiment est le premier possédant cette particularité qui a d'ailleurs été adoptée dans de nombreux cas. Les calculs statiques ont été exécutés sous la direction de l'auteur.

Zusammenfassung

Das Aufnahmegebäude des Dubliner Flughafens, Collinstown, erbaut in den Jahren 1939-1942, ist eine monolithische Eisenbetonkonstruktion von 115 m Länge, 18 m Breite und 20 m Höhe bis zur Spitze des Kontrollturmes. Es ist im Grundriss konvex gegen das Flugfeld gekrümmt, damit eine Grösstzahl von Flugzeugen bedient werden kann.

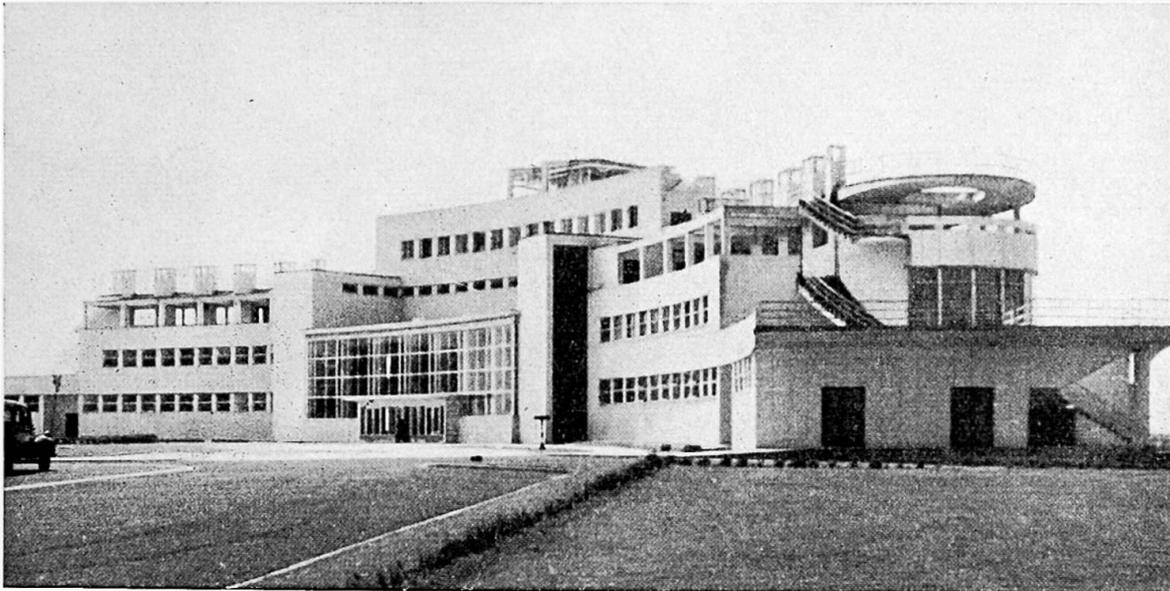


Fig. 2. Dublin Airport Terminal Building. Elevation facing approach road.

Es scheint, dass Collinstown der erste Flughafen ist, der ein gekrümmtes Aufnahmegebäude besitzt. Diese Anordnung wurde seither vielfach angewendet. Der statische Entwurf wurde durch den Verfasser ausgeführt.

Summary

The Terminal Building at Dublin Airport, Collinstown, constructed 1939-1942, is a monolithic reinforced concrete structure 380 ft long, 60 ft wide, and 65 ft high to the top of the control tower. It is curved in plan, convex to the airfield, to serve the maximum number of aircraft. Collinstown appears to be the first airport with this type of curved Terminal Building which has since been widely adopted. The structural design was made by the Author.

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