



The hyperion tower, an audacious demonstration of the use of materials

Jean-Bernard Datry, Audrey Zonco, Etienne Combescure, Zakaria Kertaoui, Clement Le Dem

Setec tpi, Paris, France

David Masse

Eiffage, Bordeaux, FRANCE

Philippe Bontemps

Terrell, Toulouse, FRANCE

Contact : audrey.zonco@setec.com

Abstract

With a total height of 55m, the Hyperion residential Tower is located near the Saint Jean train Station in Bordeaux France and was designed by the engineering firm Terrell in association with the architectural practice Jean-Paul Viguier & Associates. The structure is braced with a reinforced concrete core, made of cross laminated timber floors, laminated timber beams along the periphery of the building, wood frame walls on the façades, and prefabricated steel balconies placed in situ with cranes. Detailed design of the composite tower was carried out by engineering firm Setec Tpi, through a large use of BIM software's (Revit and Tekla) from which shop drawings were generated. The main contractor Eiffage had to face many challenges during construction to erect what is now the tallest wooden tower in France.

Keywords: Tower, wood, timber, concrete, steel, composite, hybrid, prefabrication, seismic, BIM

1 Introduction

Designed by the Viguier architectural practice and by the Engineering firm Terrell and built by Eiffage Construction with assistance from the engineering consultancy Setec tpi for detailed design, Hyperion is a mixed housing complex that will contain 176 homes, 340 m² of retail space and 3900 m² of office space, across five buildings. It will rise in the centre of Bordeaux, close to the Saint-Jean railway station, at the heart of the new Euratlantique district.

Since 2010, this district has been part of a vast urban regeneration programme led by the Bordeaux Euratlantique public development

agency (EPA). By 2021, it will be not only a major business centre accommodating 15,000 employees, but also a cultural hub as home to the new Maison de l'Économie Créative et de la Culture en Aquitaine (MECA), and a cosmopolitan district boasting plenty of housing and amenities. The Euratlantique district is more generally a part of the "Bordeaux 2030" city modernisation plan, which aims to make Bordeaux a top-tier European city.

The Hyperion complex will play a major part in this regeneration. Through its innovative design symbolic of newly emerging low-carbon construction methods, this project will become the