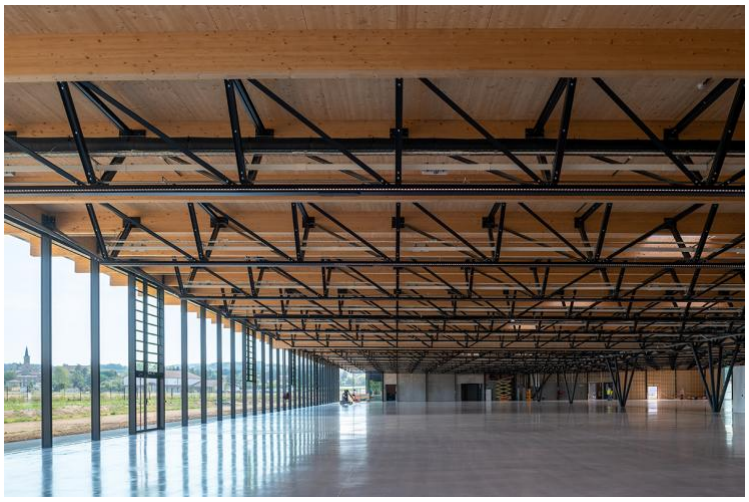

Atelier bioclimatique Charmes-sur-l'Herbasse

Location : Charmes-sur-l'Herbasse (26)

Architect : DE-SO Architectes

Client : Société des Ateliers LV

Package : Structure bois-acier, Façades & Couverture

Scope : Conception et suivi de réalisation de la charpente, couverture et façades

Date : 2021-2022

Following two previous workshop buildings (in Beaulieu and in Azé), a new leather-goods workshop for Louis Vuitton has been made in the Drôme region of France, built to a similar design but with a few modifications. The structure of the workshop is composed of two series of 19 three-dimensional timber–steel composite truss beams, each 30m long and spaced 5m apart. These beams span transversally between a central three-dimensional truss beam in steel, which runs longitudinally, and the posts in the north and south facades. The central truss beam sits on a series of bipod or tetrapod columns positioned in the middle of the workshop, which ensure the structure's horizontal stability, and on posts in the facades. The building's horizontal stability is also ensured by the vertical cross bracing situated in the solid panels of the south, west and east facades.

Because of the shallow pitch of the roof, the transversal truss beams incorporate a counter-slope in order to ensure the minimum required slope of the roof.

The roof is supported by CLT-type timber panels spanning between the upper glulam chords of the truss beams, positioned every 2.5m. These panels function like a diaphragm to ensure the bracing in the plane of the roof.

The whole structure sits on deep shaft foundations. Because the site is a level 3-rated seismic zone, the foundations are interlinked. On the facades, a continuous steel section pinned to a concrete ground beam takes the loads from the posts and the facades and transfers them to the foundations. In the central section, the posts sit on deep shaft foundations topped with a solid foundation in reinforced concrete.

The floor at ground floor level is comprised of a concrete slab on earth fitted with heat transfer networks, creating an active slab to manage the climate control of the premises. For all the designated active slab zones, the slab sits on thermal insulation.

The solid elements of the facade are made of prefabricated timber-stud panels, 2.5m wide by 6m high, fixed to the steel mullions and transoms. These timber-stud walls are clad internally with plywood lining, with external wood fibre insulation clad on the outer face in heat-treated wood. The support frame is made in spruce and also incorporates a vapour barrier and a breathable waterproofing membrane.