



EMG Plot Four

Working on a [design and build](#) contract, Caunton Engineering has fabricated, supplied and erected 900t of hot and [cold rolled steelwork](#) for Plot Four at the East Midlands Gateway.

Measuring 244m x 69m and reaching a height of 12m, the unit will offer just over 16,000m² of floorspace. This [portal-framed](#) structure will be occupied by Swiss-based transport and logistics company Kuehne + Nagel.

It will include a 3,700m² temperature-controlled area to accommodate the company's growth plans within the pharmaceutical sector.

The structure has twin spans of 34.5m, supported by valley columns designed in a hit and double-miss configuration.

"Many portal frames are designed with valley columns missing every other bay (hit and miss)," explains Caunton Engineering Project Engineer Julian Harrold. "On this frame [design](#), we have

gaps with two columns missing, as this was a client requirement to create more space for its racking systems."

As the centrally-positioned spine beam has longer spans to bridge over, the member size changes in order to take into account the bigger loadings that are encountered on the top of each column.

Thicker [plate sections](#), measuring 400mm-wide and 8.5m-long, are positioned over the columns and these are then spliced to narrower 17m-long members that span between the columns.

Supporting the spine beam is a series of plate girder columns each weighing 5t.

As well as designing and [erecting](#) the main frame, Caunton has also installed precast stairs within an attached three-storey office block, which is positioned along one of the gable ends, a pre-cast lift shaft and a walkway that connects

the main office to a smaller hub office.

The office block has a [composite beam](#) and column design, with internal clear spans of up to 10m. Caunton has subcontracted Structural Metal Decks (SMD) to [install the steel decking](#).

At the opposite gable end to the office, the structure features a large 15m-deep loading canopy that stretches the entire 69m-width of the warehouse and is supported on a series of [CHS](#) columns.

"Similar to the hub, we've erected the canopy late in the programme as these two external features would otherwise hinder the [cladding installation](#)," says Caunton Engineering Deputy Erection Department Manager Richard Patterson.

"Once the cladding was in place in these areas, we installed the [canopy steelwork](#) connecting to stubs that were left protruding and this then gave us a clean precise finish."