

HANSEN DRIVES LIMITED COIMBATORE

designed for stiffness rather than for strength

Hansen Drives Limited invited CRN Consultants to their existing facilities at Belgium to understand the facilities and process utility details provided at site. The client explained what material is going to be produced in the site, and accordingly, the details and requirements for their Coimbatore factory was given to the architects on the same lines, and were asked to do the layout based on the local governing rules.

Designed to Need

The building conceptualised by CRN Consultants in Coimbatore was designed for stiffness rather than for strength, as all the equipment and suspensions are both, vibration and deflection drift sensitive. The building is well designed to bring maximum natural light to the operating floor which results in huge savings in energy costs. Dust proof warehouse, sensitive climatically controlled measuring rooms, completely air-conditioned manufacturing unit are some of the salient features of PEB construction.

Steeled with Choice

The entire building was having interconnectivity of each part because of their production requirement, and most of the factory floor area had to maintain the temperature to about +/- 24 degree centigrade with humidity about 70 per cent. Also, many EOT cranes were provided for their productive requirement and handling purposes. Hence, for the flexibility and easy maintenance, structural steel members were selected as the primary choice for the factory.

Simple yet Practical

The process and material flow required a simple geometry of plan layout with straight forward circulation. This resulted in a clean geometry of plan with emphasis on the wall and fenestration treatment to give the relief in the elevations. Open gantry was provided to handle the AHUs which were provided on the terrace of sheet roof of central passage.



FACT FILE

Client: **Hansen Drives Limited**

Architect: **C. R. Narayana Rao (Consultants) Pvt. Ltd.**

Consultant: **C. R. Narayana Rao (Consultants) Pvt. Ltd.**

Steel Fabricator: **Kirby Building Systems Limited**

Steel Tonnage: **21,000 MT**

Status: **Completed**



Driven by Creativity

The client had interestingly wanted to use a North light system for the framing. The usual common practices driven by speed and economy was the regular 'A' frame. Based on their comfort levels and their practices, the client did not want to compromise on this, and hence, the architect developed a semi-North light profile for the roof. This worked well because the plans were otherwise on a strict geometric grid. The roof profile adopted seemed a natural extension of this geometry expressed on the higher roof plane.

North light glazing with multi-wall polycarbonate sheet and sheet partitions are used in this project to get the natural day light to the fullest extent. Sun rays during the day are dispersed by the partitions and the factory gets the natural light. About 78.5 meters long lattice type crane girder, 2-meter deep beams are lifted by 5 cranes on a single lift. Rain water collection from such a large area was done by means of PVC header pipe systems and an efficient rain water harvesting system is implemented over 30 per cent savings in time for the customer.

Erection was done with state-of-the-art facilities like man lifts/scissor lifts to save time and safe working. North light glazing with multi-wall polycarbonate sheet and sheet partitions are used to get the natural day light to the fullest extent. Sun rays during the day are dispersed by the partitions and the factory will have natural light. The factory flooring and internal roads were laid with steel fibres imported from Belgium and laser levelling was done to achieve the levelled floor to accommodate the Air pillow movement with load on it.

As far as software used for designing and detailing is concerned, STAAD with analysis by considering the prevailing IS Codes and standards was used, and also NBC for the foundation, civil works and PEB works along with all Utility works was used. Kirby Building Systems India Limited, Hyderabad was the supplier of entire PEB buildings at site, including the erection with their qualified erection gang with their site engineers at site. The works were supervised by CRN from the start till the handing over the project in all respects to client. ■

“This was a very demanding project to work on due to the complexity of the process and material handling – both the raw materials and the finished product.

Coupled with exacting specifications and quality of the overseas investors, the project team wanted similar indoor working conditions including natural lighting. Since the facility was also air-conditioned, it became necessary for us to balance the demands of Coimbatore's increasingly harsh summer with natural lighting through the North light trusses. This allowed the use of a hybrid solution of the semi-North light and the end result was surprisingly efficient from both the aesthetic and cost perspectives.”

C. N. Srinivasan

Managing Director

C. R. Narayana Rao (Consultants)

Private Limited