



SOUTHERN AFRICAN INSTITUTE
OF STEEL CONSTRUCTION

Steel Awards 2023



Cadcon (Pty) Ltd

PnP Inland 2 Distribution Centre

THE PROJECT BRIEF

CLIENT: Pick 'n Pay / Fortress Logistics Real Estate

ARCHITECTS: ICM Architectural Studio

ENGINEER: Sotiralis Consulting Engineers

MAIN CONTRACTOR: WBHO



CLIENT BRIEF

The consolidated DC, which is in excess of 160,000m², is designed to optimise productivity and efficiency by incorporating groceries, perishables, fresh produce, all general merchandise and imported goods all under one roof, avoiding duplication of supply chain costs. The DC will incorporate expansion plans, future customer demand, hugely increase stock deliveries to stores while being able to hold slower moving lines, giving customers an extensive, but tailored product range without additional distribution costs and is therefore an opportunity for Pick n Pay to get a competitive edge from their supply chain, allowing them to pass this benefit back on to consumers and increase profitability of the group.





ARCHITECTURAL SOLUTION

The structural steel roof framing, which is softly curved and exaggerated by the use of continuous double radiused roof sheets over the roof monitors, creates seamless and gentle lines in order to soften the large architectural form of the industrial typology while functionally following the internal racking profiles as tightly as possible to avoid excessive structural heights and reduces steel weights.

The large uninterrupted steel roof profile allowed for the concealed-fix roof sheeting to be rolled in continuous lengths to avoid joints, the longest of which is an official Guinness World Record of 280m in length.





THE PROJECT OVERVIEW

The Pick 'n Pay DC is the largest logistics development agreement to date at the Eastport Logistics Park, near OR Tambo International Airport, Gauteng

The goal of the new distribution centre is to make Pick n Pay's supply chain more centralised and aid in fulfilling its customer value project. It also offers 50% more capacity than the current Longmeadow facility.

It is the largest single-phase warehousing development in South Africa

This 165,000m² structure includes an ambient environment building (Dry Goods) of 94,000m², a cold storage building (Perishables) of 46,000m² and a returnable building (RRU) of 25,000m²

The Dry Goods building would house approximately 14 rugby fields under its massive roof which spans approx. 280m and its widest part of the building.

An aerial photograph of a large-scale construction project. The main focus is a long, curved industrial building with a white, curved roof. The roof is partially completed, while the rest of the structure is still under construction, showing a complex network of steel beams and scaffolding. The ground around the building is reddish-brown dirt, with some construction equipment and materials visible. In the background, there are other industrial buildings and a road.

PROJECT OVERVIEW

STRUCTURAL STEELWORK

Project Completed: 2023

Steelwork Completed: 2022

Tonnage: 3400 T

Profiles used: UB, UC, PFC, CHS, Angles

PROJECT OVERVIEW

STRUCTURAL STEELWORK

Structural Engineer: Sotiralis Consulting Engineers

Steelwork Contractor: Cadcon (Pty) Ltd

Steel Detailer: Mondo Cane

Steel Merchant/s: Macsteel, BSI, Steelrode, Stewarts & Lloyds





FRAME & CONNECTIONS

The main structural frame is a double portal system where trusses & lattice girders were designed as part of portal frames to provide stability in two directions.

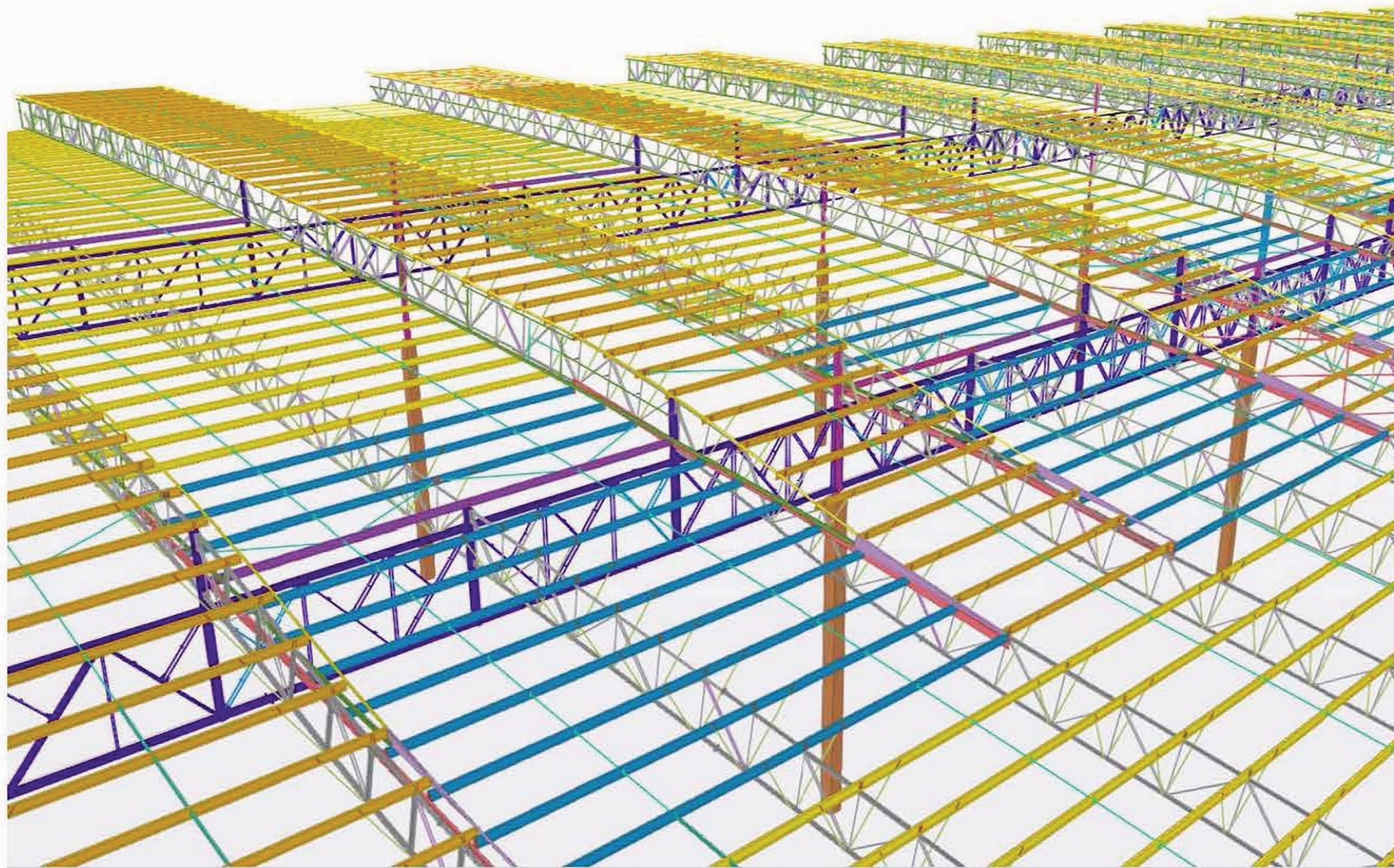
Trusses occur at 8.175m centres and lattice girders occurs every 32.2m. Internal column grid is therefore 32.1m x 32.7m.

Trusses for the Dry Goods and RRU Warehouse are 1.9m deep and lattice girders are 3.4m deep.

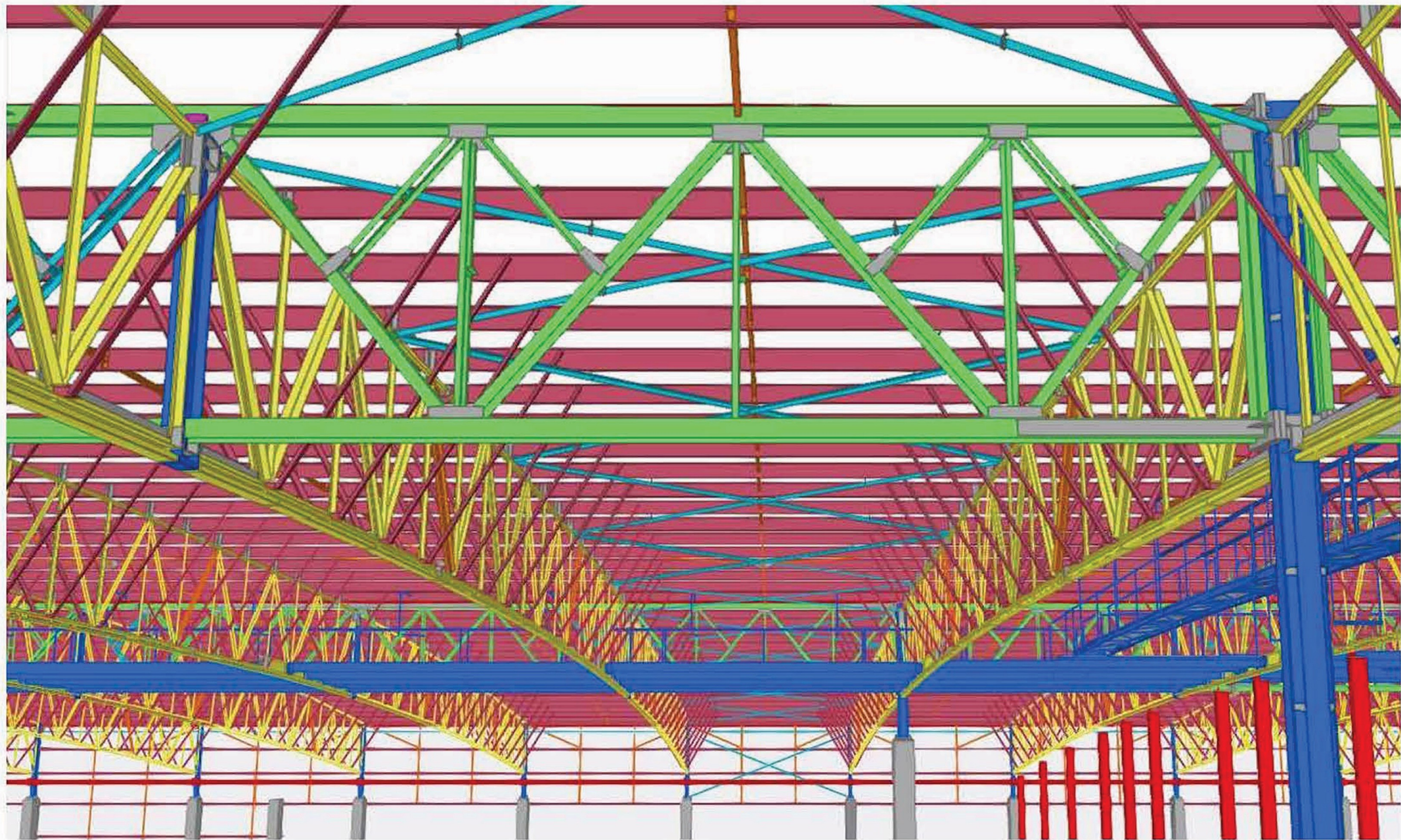
The Perishables Warehouse has an insulated ceiling below the steel frame and all trusses and lattice girders are 2.4m deep to allow for maintenance to occur within the ceiling void.

The Perishables Warehouse roof structure was designed to support heavy cooling units. There are 80 cooling units of 1700kg and 24 cooling units of 1100kg suspended from the steel roof structure – A total of 162 tons of cooling units are suspended from the steel roof structure.

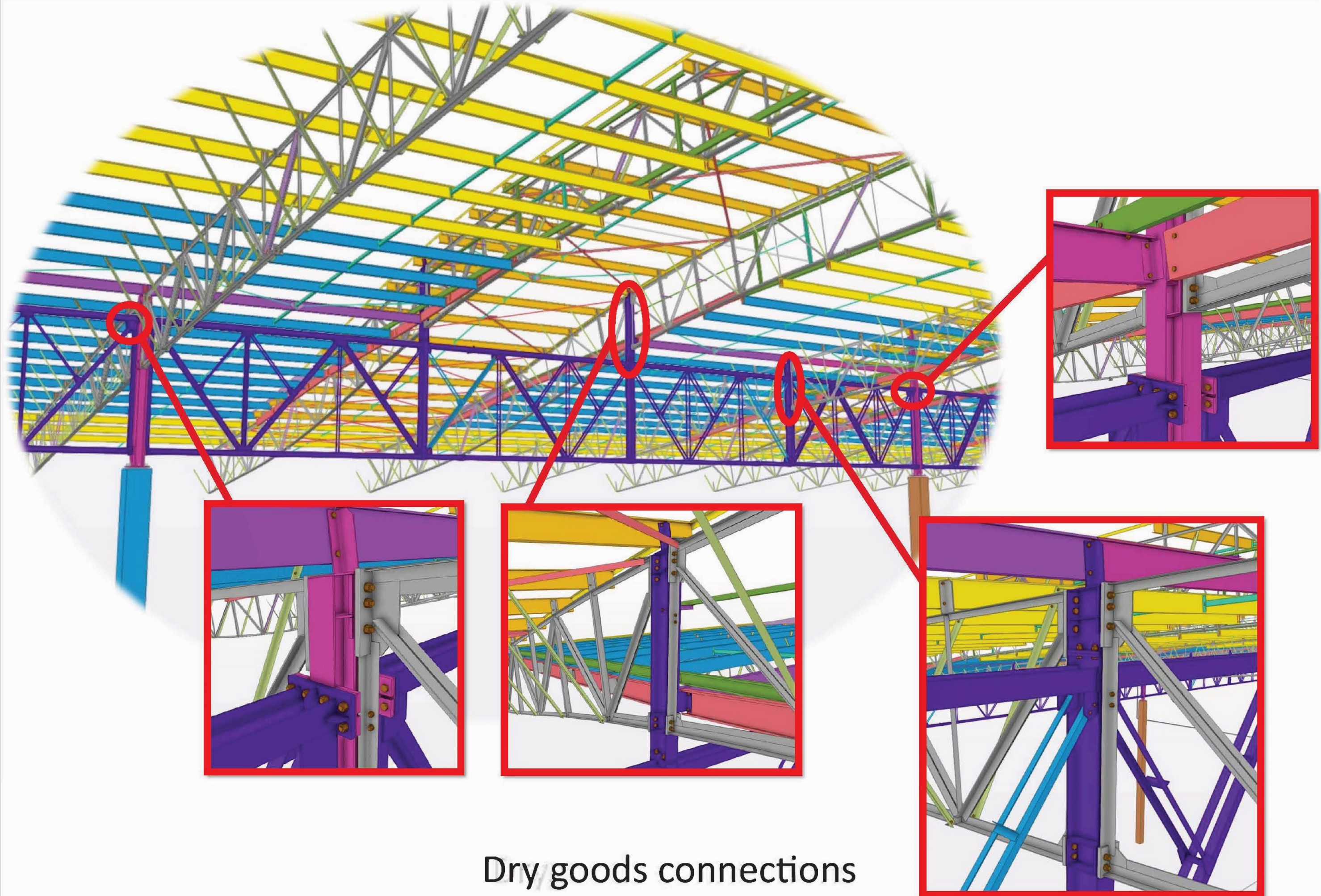
Dry Goods Warehouse has the highest apex of 25m and is the biggest warehouse at the Pick 'n Pay site, with plan dimensions of 279m wide and 411m long.



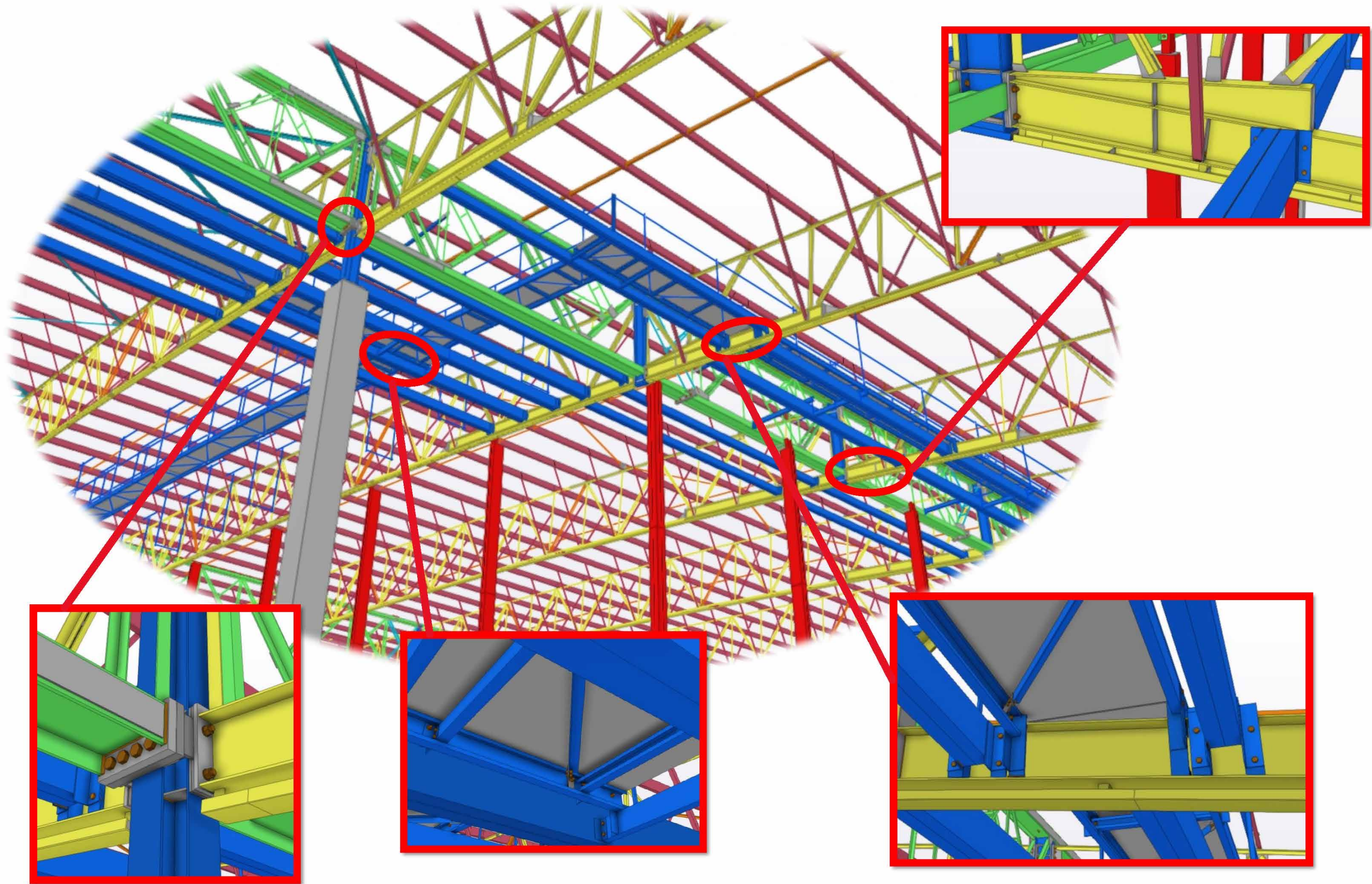
Dry goods framing



Perishables framing



Dry goods connections



Perishables connections

FABRICATION

STEELWORK CONTRACTOR: Cadcon (Pty) Ltd / Leita Steel

ERECTION / CONSTRUCTION / INSTALLATION

CONTRACTOR: Cadcon (Pty) Ltd / Leita Steel / GSE /
Leibrandt Erectors / Dram Industrial Painting







METAL CLADDING/ ROOFING

CLADDING MANUFACTURER: Safal Steel

CLADDING ROLL FORMER / PROFILER: Macsteel Roofing

CLADDING/ ROOFING SUPPLIER: Macsteel Roofing

CLADDING/ ROOFING CONTRACTOR: Tate & Nicholson

PROJECT OVERVIEW

METAL CLADDING AND ROOFING

Project Completed: March 2023

Cladding Completed: 2023

Cladding Material Used: 0,5mm Az100 G550 Colorplus

Cladding Profile: Novotexi 440

Cladding Area Coverage: 201 000m²

Cladding Tonnage: 1100 tonnes





 **FORTRESS**
LOGISTICS
REAL ESTATE

It's Official!



Breaking the

World Record

with passionate people
and pioneering technology.



CERTIFICATE

**The longest roof span covered by a single
metal corrugated sheet is 280.04 metres
and was achieved by Macsteel Service
Centres South Africa (Pty) Ltd, (South
Africa) in Johannesburg, South Africa, on
25 May 2022.**

OFFICIALLY AMAZING™



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CHALLENGES AND SOLUTIONS

Aggressive time-lines. Erection started November '21 and 3 main buildings were completed by May '22.

Fabrication at average 500T per month and erection at average of 600T per month

Inclement weather during November to February put further time pressures on the program.





THE BENEFITS OF STEEL IN THIS APPLICATION

Aesthetics. Steel allows for lightweight and cost-effective solution.

Lightweight Steel Structures are more economical in dolomitic areas as foundations need to span a 5m loss of support.

Creating a curved roof was fairly easy to achieve in steel.

Steel allows for a reduced construction time. (Speed of Fabrication & Erection).

WHAT WE'RE PROUD OF

Speed of fabrication and erection - erected on average at 600T per month to meet the aggressive time-lines.

Being part of a Team, which has delivered a world-class and World Record breaking facility.



November '21
1st Steelwork Installed



May '22
3 Main Buildings Complete

