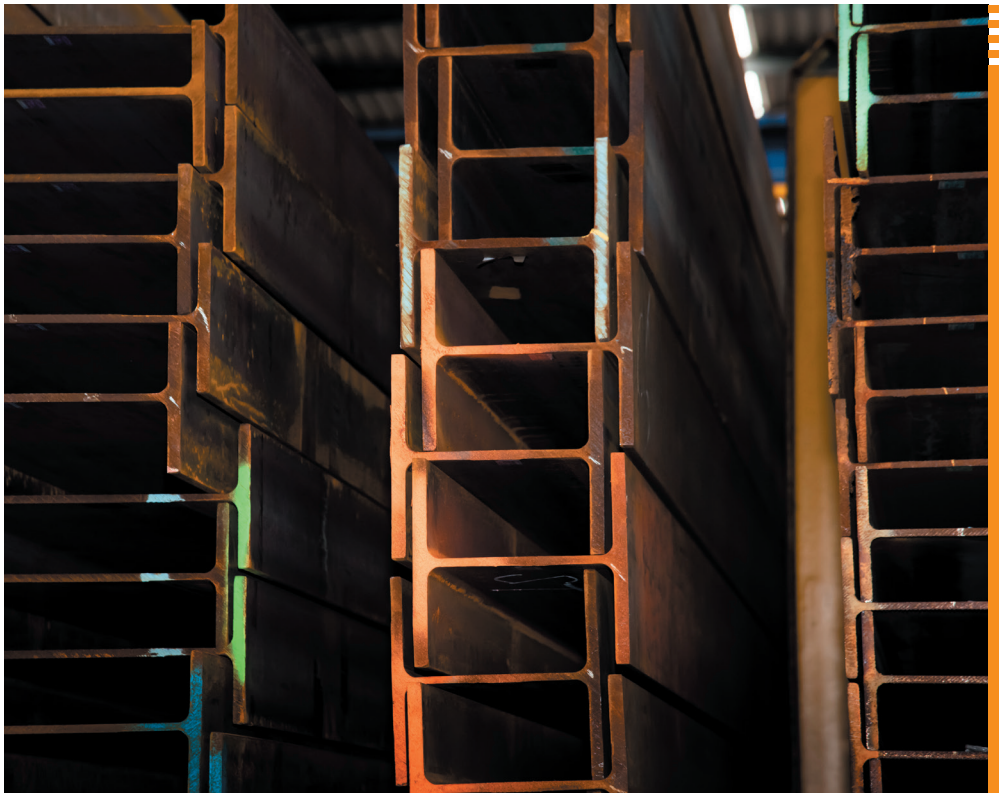
SPRING 2021

CONNEXIONS

D&H STEEL PEOPLE + PROJECTS + PERFORMANCE



IN THIS ISSUE

PLAN, PLAN, PLAN

Squeezed by construction demand on one side, and shipping and supply constraints coupled with rapid-fire price increases on the other, D&H Steel has had to develop new tools to communicate and demonstrate certainty in uncertain times.

A boom in construction is being hampered by COVID-induced supply limitations. Together, they are playing havoc with the wider industry's ability to deliver to meet delivery requirements and hold prices.

These supply issues don't discriminate – irrespective of the product or scale of the business, most construction industry suppliers are being impacted. Our structural steel industry is no exception.

Over the past 12 months, several external factors have conspired to drive up the cost of steel, including the effects of world commodity supply and demand, the influence of domestic markets in China and the USA, and climbing shipping rates.

Lead times, too, are being affected. With the exception of some limited supplies of plate, New Zealand imports all of its structural steel raw material. It is sourced from many different mills and countries, but predominantly from South East Asia. Compared with a year ago, lead times are four-to-eight weeks longer, depending on the type of product.

A recent construction supply chain report by Eboss, a digital library platform for architecture and building products, reinforces our experience of the market and identified four key issues that the construction industry needs to tackle together to successfully preserve productivity and affordability.

First, it noted that our construction industry is reliant on imported product, and that the combined issues of reduced supply and heightened demand are stretching our supplies even more finely. Second, Eboss identified the possible hidden price impacts and sustainability of our supply chain, where suppliers are reducing margins and hunting for efficiencies elsewhere to try to maintain price rises at an acceptable level. It suggests that, in time, this focus will begin to affect supply. Third, it noted that we play in a global market that is predicted to grow. As major overseas' markets recover post-COVID, we'll be vying for product and shipping availability. The last issue it identified is the struggle to secure suitable talent.

While it's difficult to look further than six months ahead, industry pundits concur: we should assume these issues will persist for at least 18 months, albeit there is a prediction of flattening price in the next six-nine months. *Continued inside*

D&H STEEL CONSTRUCTION

SO, WHAT'S THE SOLUTION?

For some time, D&H Steel has promoted the use of a detailed Price Schedules with split material and labour rates for each item. This provides full transparency on real cost and the schedule becomes a powerful tool to manage changes in cost as design develops. D&H Steel has developed the model further where, under confidentiality, we will now also provide 'actual raw material buy price' per item to set material cost benchmarks.

It has to be done under strict confidentiality as we are sharing highly sensitive information, usually held closely between ourselves and our supply chain. But, given the construction market dynamics and speed of change, we feel full disclosure is required to give everyone comfort that claims for material fluctuations are real and fair.

For D&H Steel it's about transparency and collaborative risk mitigation. D&H Steel has also developed further procurement strategies to mitigate exposure to increasing material costs. This is especially important on projects that span more than a year from time of engagement until completion. Often the least-risk and least-cost solution for the client is a combination of fixing material supply cost as far forward as possible (usually a maximum of six-nine months) but then ordering the balance of material in advance and paying for additional handling and storage costs.

The current landscape underlines the need for more collaboration and earlier engagement across the broader construction industry. Each stakeholder – from developers, architects and engineers to quantity surveyors, builders and subcontractors – has a role to play.

That's why Early Subcontractor Involvement (ESI) is so critical. The procurement strategy has a massive role to play in the outcome of any construction project. Depending on the approach, it can drive budgets up or down, and cut or add weeks to delivery programmes.

An ESI approach captures the knowledge and experience of the specialist subcontractors. It delivers projects that carry much less risk, enjoy fewer variations and are typically much better planned.

From the outset, ESI allows subcontractors like D&H Steel to add real value by collaborating on the design with the structural engineer, architect and quantity surveyor. As a team, we explore buildability, timeframes and risk to achieve the best result for the project. It's a recipe for success.

WAYNE CARSON

Managing Director,
D&H Steel Construction

NEW ZEALAND'S LARGEST STEEL STRUCTURE REARING TO GO

An early engagement approach to the design and procurement process for the University of Auckland's new Recreation and Wellness Centre has allowed the most effective design solutions to be developed.

The Centre will be home to an eight-lane, 34m-long swimming pool and below-ground dive tank, two sports halls, facilities for fitness and weight training, and a landscaped rooftop training area with a futsal pitch.

In 2019, key stakeholders invited D&H Steel to be involved in the project in an Early Subcontractor Involvement (ESI) capacity. From the outset, D&H Steel worked closely with Structural Engineer Beca and Main Contractor Hawkins Construction. The result is a highly efficient, fit-for-purpose design methodology for the 6,000t, 20,000sqm building.

"We are delighted to be part of the successful team that will deliver this pivotal project for the University," says D&H Steel General Manager Richard Hine. "It's another perfect example of the benefits that can be achieved with an ESI model."

D&H Steel is now primed to deliver what is the largest steel project currently under construction in New Zealand.

The structural steel frame features a 900x900mm diamond-shaped diagrid – a full-height perimeter steel-bracing technique that envelopes the main structure and forms an architecturally exposed structural system.

"The diagrid 'mega braces' replace the vertical columns of traditional construction and will create a stunning asset for the University," says Hine.

Below left: The brief required the project be 'vertically stacked' to ensure operational efficiency and a physical 'fit to site'.

Below: Diagrid box sections stacked and ready for final fabrication, with Ramesh Chemutu, Fabricator (left), and Raul Ponce, Prep Bay (right).

NEW WAREHOUSE TAKES STORAGE TO NEW HEIGHTS

D&H Steel applied its considerable nous to deliver a striking, future-proofed and expansive warehouse facility at Auckland Airport.

Hellmann Worldwide Logistics' soaring new facility features 16,000sqm of warehouse space and a 3,200sqm cantilevered canopy, allowing storage for up to 29,000 pallets, up to 10 pallets high.

Flexibility was at the forefront of the warehouse's design, which needs to be able to scale and adapt to meet the tenant's future requirements. For example, the facility's column-free space and enhanced floor specifications can accommodate any future installation of robotic-based material handling and automation solutions.

The work was overseen by D&H Steel Site Supervisors Matt Sinclair and Kyle Finch, and coordinated by Project Manager Amy Knowles.

"Everyone got excited about the first lift," says Cabaret. But it was just another day at the office for D&H Steel and Macrennie had confidence in the team. "D&H is a good company to work with."

The build included an architecturally designed, 400sqm office, which features a fabricated steel pelmet. The building's awkward shape added complexity to the fabrication and erection of the steelwork.

High-tech computer modelling had an important role to play in the process, says Cabaret. "But it also had to be welded together, something not just anyone could do. D&H did it and they took a lot of care to get it straight on site. The impression of a lovely looking office doesn't tell you how much effort it took to get it there."

Main image: At 75m wide, it's the largest clear span Custom Welded Beam portal frame D&H Steel has fabricated.

Below: The build included an architecturally designed, 400sqm office, which features a fabricated steel pelmet.

WHAT DID D&H STEEL BRING TO THE PROJECT?

"Their experience," says Macrennie Site Manager Dennis Cabaret. "They were a critical part of the project. They had a job to do and they did it well."

"At 75m wide, it's the largest clear span Custom Welded Beam portal frame D&H Steel has fabricated," says D&H Steel CWB Manager John Frederickson.

Each frame weighs 26t and consists of columns 14m high and rafters 1.53m deep at the knee. Frederickson says the frames are more substantial than usual because they were designed to support the additional dead load of the roof-mounted solar panels.

The roof structure was assembled on the ground and erected in phases – four rafters and three bay lifts with six cranes.

"You only have to worry about the weakest links in a project and D&H Steel isn't one of them." **DENNIS CABARET** **Site Manager, Macrennie**

ST KENTIGERN'S: A SEAMLESS DELIVERY

D&H Steel impressed with its flawless delivery of structural steel for St Kentigern's Girls' School, from its precision detailing and manufacture to its smooth supply and on-site erection.

"D&H did things when they said they would do things. It was a pleasure to work with them. There were no delays, in fact we sped up a bit, and at Christmas time which is usually unheard of."

MARK RHYND Site Manager, Aspec

The striking new school takes advantage of its steep, sloping site to allow construction of a multilevel, terraced structure. A feature of the purpose-built, 19-classroom facility will be an atrium that opens from the second to the fourth floor.

The structure comprises a two-way steel moment-resisting frame with 508mm-diameter circular hollow section columns and steel beams joined by cruciform collar flange plates. The open nature of the moment-resisting frame and absence of perimeter wall bracing provides clear views of the sports fields and Hobson Bay while maximising the flexibility of the internal layout.

Aspec Site Manager Mark Rhynd says D&H Steel added value from the outset. "In our first meeting D&H proposed a solution to make it more efficient in the workshop."

At D&H Steel's suggestion, the columns were erected full height, enabling the floor beams to be efficiently installed in phases using simple bolted connections, which also reduced time on site.

"To begin with, it looked like it was going to take longer but when we levelled out on the third floor we were ahead of programme," says Rhynd.

He was impressed with the workmanship. "It's the first time I've seen steel completed to such a high degree of accuracy on site."

Rhynd says it's a reflection of the draftsmanship of D&H Steel Detailer Wayne Peachey and the work in the factory itself. "To achieve that level of tolerance takes considerable effort from the start."

He was equally complimentary of the erection team, led by Site Supervisor Karl Muller and his Foreman Elmer Esguerra. "They were efficient and understood what they were putting together. The job was also resourced properly; they were never short of staff and never struggled to achieve the agreed target.

"And Kieran Pouwhare made sure how he wanted to put it together went to plan."

The site's position on the side of a hill meant the team had to use a 20t tower crane to lift everything down into the construction zone. It is also on a main transport arterial, which posed its own challenges.

D&H Steel Site Manager Kevin Deane made sure Aspec knew what it was getting and when, which allowed Aspec to carefully plan its traffic management activities in line with site deliveries. Rhynd also credits Aspec Site Manager Ross Gillard and his team for making sure the site was ready for D&H Steel. "You can't build things like this unless you've got a good foundation. We did a survey of everything before D&H arrived on site, so they had faith that we had everything in the right place."

D&H Steel provided good templates that made it simple for the Aspec team to ensure locations for the hold-down bolts were correct."So it was all very collaborative."

Top Left: The purpose-built, 19-classroom school features a multilevel, terraced structure.

Bottom Left: Aspec was impressed with D&H Steel's workmanship.

PUHINUI STATION INTERCHANGE: A NEW GATEWAY TO AUCKLAND

D&H Steel's workshop smarts are behind the Station's stunning form, which features an intricate assembly of structural steelwork.

The newly opened, $69m Puhinui Station Interchange in Papatoetoe is a landmark for the local community and a vital link between the airport and the rest of Auckland.

At its heart was the desire to produce a distinctive and quality experience for passengers, in line with the Station's prominence as a gateway to the city. The structure's striking aesthetic was a collaboration between the design team and mana whenua.

The roof's feather-like form, which appears to shield those who pass beneath it, involved an intricate arrangement of

"It was easy to work with D&H Steel. They came onto site, managed their work without any hassle and provided support where needed."

MICAH RIDLING

Project Engineer, Haydn & Rollett

Top: Costco's new 14,740sqm warehouse is a lightweight steel-framed, EBF-braced, post-and-beam structure.

Above: Some of the D&H Steel team enjoyed a 'walk about' on site as the Costco warehouse took shape.

STEEL ENABLES BIG BOX RETAIL

D&H Steel supplied, manufactured and installed all of the structural steel and ComFlor for new kid on the block, Costco.

Costco Wholesale Auckland Warehouse is Westgate Shopping Centre's latest offering. The three-level, $100m megastore features an 8m-high bulk retail space with two upper-level parking areas boasting capacity for 800 cars.

The design of the building's 14,740sqm footprint is a lightweight steel-framed, EBF-braced, post-and-beam structure with composite steel flooring. Isolated foundations support the 2,300t steel structure. The construction features large, open areas inside the building to maximise the use of the space – internal stud heights are particularly high on the ground floor to give a more spacious feel and a sense of volume.

Haydn & Rollett Project Engineer Micah Ridling says that one of the most significant challenges for the project was how to mitigate the impacts of COVID on material supply and increasing steel costs.

"D&H was able to secure local material to kick off the project while waiting for the indent to arrive. While there was a backlog of orders within the industry, D&H was very resourceful."

It was also a tight programme, which relied on multiple teams to progress with the erection on site.

"This put pressure on the design consultants to produce design documentation and then approve the shop drawings quickly enough so that it could be fabricated in time," says Ridling. "Communication and collaboration have been vital assets in overcoming challenges."

D&H brought its wealth of experience to the table, which was invaluable, says Ridling. "Particularly their clear approach to problem-solving during the detailing and installation of the structural steel."

Costco is the world's second-biggest retailer after Walmart and the Auckland store is expected to provide the full offering, including groceries, homewares, liquor, optometrist and food court.

beams and columns, and some very geometrically challenging connections to tie it all together.

D&H Steel General Manager Richard Hine says that realising the architectural design and resolving the complex structural geometry was challenging.

"It required close collaboration between our detailing and fabrication teams to distil the complex 3D contouring form into easy-to-understand 2D fabrication drawings to allow the spectacular outcome," says Hine. "At one point, we had five detailers simultaneously working on different aspects of the structure, including Mike Thompson, Sue Lemmens, Guy Jamison, Wendy Sang and Daryl Morrison, bringing more than 100 years of combined detailing experience."

Several curved members were required to achieve the roof structure's unusual geometrical shape, including some curved Custom Welded Beams (CWBs) that were manually welded due to the tightness of the specified radii.

Site installation of the roof was equally complicated, working above a live railway network and 25,000kV lines. Erected over six months, some of the work was completed during a Block of Line (BOL). BOLs, which are booked with KiwiRail months in advance, stop trains from using a section of rail for a period of time, typically a couple of days.

"Construction during a BOL requires significant planning and effort to ensure everything is ready on the day for seamless erection of the steel," says Hine.

This work was coordinated by D&H Steel Project Engineer Sam Wells and Site Manager Nick Yakas, and the steel installation was ably carried out by Site Supervisor Dean Rafferty and his team.

Work on the station upgrade began in 2019 and was one of four shovel-ready transport projects that received government funding in 2020.

The new joint bus and train station allows passengers to transfer between services, including the electric AirportLink bus, and is part of the wider Auckland Airport to Botany Rapid Transit project.

Top Left: The roof's feather-like form involved an elaborate arrangement of beams and columns.

Bottom Left: The architecturally designed Puhinui Station provides a stunning new gateway to Auckland.

- **+ Project Management**
- **+ 3D Modelling & Shop Drawings**
- **+ Fabrication**
- **+ Protective Coatings**
- **+ Site Management & Erection**

D&H was the first steel constructor in NZ to be awarded this International Quality Accreditation. We comply with ISO 3834 for the benefit of our clients.

ISO 3834 Part 2
Certificate No. 001NZ/2014

We were also the first to acquire Steel Fabrication Certification - a quality management system under the auspices of the IIW (International Institute of Welding).

SFC CERTIFIED FABRICATOR
CONSTRUCTION CATEGORY 4
CERTIFICATE NO: 001/SFC-REV.0

We manufacture all the commonly specified welded beam and column sections and provide a free design service for optimised, tapered portal frames. Our custom welded beams are made from G350 steel and welded on both sides.

CUSTOM WELDED BEAMS

SCNZ MEMBER OF STEEL CONSTRUCTION NEW ZEALAND

A SUSTAINABLE FUTURE

D&H Steel was successfully audited by the Sustainable Steel Council (SSC) to retain its SSC Chartered status for the 2021-2022 period. It demonstrates D&H Steel's commitment to being a responsible contributor to sustainable development.

Developed by SSC, the Charter is New Zealand's first sustainable steel certification programme. It is based on the Treasury's Living Standards Framework and relevant Sustainable Development Goals across the natural, financial, social and human capitals. SSC is supporting the sector to build skills, capacity and processes for maximising steel's contribution to a sustainable, low-emissions and climate-resilient society.

SUSTAINABLE STEEL COUNCIL

GROWING DIVERSE TALENT

Two of our talented team are finalists in SCNZ's individual awards: Production Administrator Kelly Jeffries is up for the SCNZ Young Achiever of the Year, and apprentice Angela Adams is competing for SCNZ Apprentice of the Year.

Each award recognises skilled, hard-working and well-rounded employees who demonstrate not only talent and good attitude but display important industry traits – commitment, innovation and agility.

ANGELA ADAMS, FINALIST, SCNZ APPRENTICE OF THE YEAR

Angela undertook her practical work experience at D&H Steel while completing her NZ Certificate in Mechanical Engineering at Unitec and was subsequently offered an apprenticeship here. She works accurately and without supervision, and enjoys having a challenging role. What's more, Angela isn't fazed by working in a traditionally male-dominated environment.

KELLY JEFFRIES, FINALIST, SCNZ YOUNG ACHIEVER OF THE YEAR

Kelly joined D&H Steel fresh from school in 2011. Starting as a frontline administrator, she has developed into the go-to person in our production office. She is organised and applies her highly analytical mind to solving problems. It has been Kelly's attitude, commitment, and desire to learn and develop that has got her to where she is today.

LOCKDOWN FUN

D&H Steel isn't one to let Alert Level 4 get in the way of some team fun. Thanks must go to quiz master extraordinaire Mark McKeown (bottom right) for organising and hosting our virtual pub quiz, which helped to break the monotony of lockdown. QA Manager Tony Hutton wielded his powerful music knowledge to win the quiz night.

MICHAEL SIMPSON QUANTITY SURVEYOR

Michael recently joined D&H Steel following a 15-year career as a golf pro. After 10 years teaching golf at driving ranges in Vietnam, he returned home and worked for a steel joinery company before joining us in July. Currently halfway through a two-year diploma in construction management, he is thoroughly enjoying learning a new trade – and not missing the golf course all that much!

Phone one of our team today. We'd love to hear from you.

Wayne Carson – 021 949 277
Managing Director

Richard Hine – 022 032 6622
General Manager

Dean Pouwhare – 021 523 788
Operations Manager/Director

Mike Thompson – 021 526 102
Detailing Manager

John Frederickson – 021 534 435
CWB Manager

Colin Ross – 021 422 819
Project Manager

Desmond Knowles – 021 526 008
Project Manager

Moro Smith – 021 735 168
Project Manager

Document Control – 021 452 488

Mark McKeown – 021 670 466
Estimating

Jamie Moxon – 021 163 2830
Estimating

Ethan Blyth – 021 053 2612
Estimating

Aaron Chandar – 021 144 5382
Procurement Officer

Glenys Gill – 021 845 723
Accountant