Construction market trends

**United States**  Private residential output constrained by shortages of materials; Private non-residential output growing.

Private residential output down for the second month in October and by -0.5% m-o-m (16.7% y-o-y); building permits up 3.6% y-o-y. Private non-residential output up 0.2% m-o-m (3.1% y-o-y). Architecture Billings Index (ABI) down to 54.3 in October from 56.6 in September (>50, expansion).

**China**  Further declines being seen in the residential property sector.

The 3 month moving average y-o-y growth in floor space started fell -21% in October; floor space sold fell -17% y-o-y.

**Europe**  Construction shows signs of recovery linked to stronger demand and increasing workloads.

Eurozone construction up 0.9% m-o-m in September (1.5% y-o-y); civil works up 2.6% m-o-m (2% y-o-y). The IHS Markit Eurozone Construction PMI rose to 51.2 in October and to highest levels since February 2020 (> 50, expansion).

**India**  Increased stability in activity being seen.

Weighted average of eight core industries output up 7.5% y-o-y in October; production of steel and cement up 0.9% and 14.5% y-o-y respectively.
Special topic: Promoting the use of sustainable construction materials

Dr. Troy Coyle
CEO at Heavy Engineering Research Association (HERA)

Sustainability, particularly reducing carbon emissions, in construction is a hot topic in New Zealand. Government-led initiatives, such as Building for Climate Change, are directing change within the sector. This framework proposes to set mandatory reporting and measurement requirements for whole-of-life carbon emissions, including from the materials used in construction, the construction process, construction waste, and the disposal of a building at the end of its life, which will form part of the NZ Building Code and associated regulations.

In recent years, it has become noticeable that the New Zealand government procurement has been placing a stronger focus on carbon, with the timber lobby pushing for a “Timber First” approach for all government buildings. The steel and concrete industries have had to respond, reaffirming that professionals, such as architects and engineers, and not politicians should be determining the best material for the required application. It is our view that procurement decisions should be made based on evidence and not on an assumption that timber is automatically preferable. It is also not the role of the government to be a material specifier, albeit specifying appropriate sustainability outcomes is reasonable.

Initially, much of the conversations and government white papers focused on embodied carbon versus lifecycle carbon, placing timber at an advantage over steel. Embodied carbon only considers carbon at the point in time that a building is built, while lifecycle carbon also considers carbon that is emitted during operations and at the end-of-life of a building. Of course, if net carbon reductions are the objective, lifecycle carbon is key, and requires significant diligence, education and advocacy from the sector broadly, including from life cycle analysis (LCA) experts.

As means of shifting this erroneous focus on embodied carbon in comparisons between steel and timber, HERA has developed the world’s first comprehensive carbon offsetting program for steel products used in New Zealand. The calculator was independently developed and is based on LCA data and preferably EPD data. It covers steel products ranging from roll-formed roofing and cladding, reinforcing, light gauge and heavy structural steel, and stainless steel. It currently covers carbon from cradle to erection. Early-stage industry indicators of relative construction costs of timber versus steel design are suggesting that the zero carbon steel option will come in 30-80% more affordable than the timber option.

In efforts to further extend this to a cradle-to-cradle approach, HERA has also commissioned work to determine steel scrap recycling levels in New Zealand. This independent report identified that 72% of scrap in New Zealand is recycled. A figure that is likely to be higher for construction steel (we estimate approximately 85%), which we are in the process of determining. The scrap is currently sent offshore for recycling and has an associated 1050kg/t carbon equivalent reduction, a value that increases as the recycling levels also increase due to reduced landfill.

Interestingly, HERA conducted comprehensive market research across the New Zealand population and found some significant misunderstandings about the sustainability credentials of steel. Probably the most concerning was that more New Zealanders thought that timber was more recycled than steel, whereas timber recycling levels are likely to be close to zero due to Building Code requirements for timber treatment, making it toxic and therefore of limited use at end of life.

Currently, HERA is also in the process of developing Australasia’s first material passport, which will involve a research to identify roadblocks and barriers to the reuse of structural steel. It will also investigate the role of a data platform in facilitating steel reuse. Then a material passport decision-making framework will be developed. The aim is to facilitate reuse and repurposing of steel, adding more value in terms of steel’s role in the circular economy.

HERA also recently commissioned an assessment of the economic impacts of adopting Construction 4.0 (Industry 4.0 adapted to Construction sector) in New Zealand. The study showed that Construction 4.0 adoption would lead to a 0.5 to 1.0% increase in GDP, worth $1.2 to $2.5 billion within 5 years. HERA has already developed capability in Fabrication 4.0 (through our fab4.0lab), and now we are looking to develop capability in Sustainability 4.0 as part of our broader Construction 4.0 research program.

In addition to the HERA led initiatives in New Zealand, the Sustainable Steel Council has developed a certification program based on Aotearoa New Zealand’s Living Standards Framework (LSF). This means that at least 70% of structural steel volume is now coming from certified members and the steel industry was the first in New Zealand to use the framework to assess its economic contribution to the nation. The LSF looks at sustainability in terms of intergenerational wellbeing across four capitals: financial, human, social, and natural. New Zealand’s steel industry has used the LSF as the basis for developing the Aotearoa Steel Industry Transformation Plan, with New Zealand Steel and many of the steel industry associations already on board.

HERA is thrilled to have joined constructsteels international network, and we are really looking forward to sharing access to emerging research and approaches to improving and evaluating the sustainability credentials of steel. We are also keen to connect with like-minded organisations to develop best-practice initiatives and coordinate information sharing across the globe.
The Infrastructure Investment and Jobs Act (IIJA), signed on November 15, 2021, will provide significant public investment in US transportation networks, broadband, and public works projects.

The legislation seeks to address a broad range of critical needs in the United States' built environment, which was recently rated C-minus by the American Society of Civil Engineers. The act will modernise the country’s ageing infrastructure through extensive upgrades for roads and bridges. The IIJA further provides funding to replace lead pipes that provide drinking water and to remediate pollution in disadvantaged communities—thus helping to build a more inclusive, sustainable economy.

From the top
The act allocates an estimated $1.2 trillion in total funding over ten years, including $550 billion in new spending during the next five, divided between improving the surface-transportation network ($284 billion) and society’s core infrastructure ($266 billion).

The US Infrastructure Investment and Jobs Act will authorize $550 billion in new spending.

**Expanding agency budgets**

The Department of Transportation will direct the largest portion of the act’s investments. Several other agencies will also see their budgets expand. Investments will go to five main areas: agency programs and operations, grants calculated by a formula, competitive grants, loans, and the Highway Trust Fund.

**Priority investments**

The act will include funding for a range of issues. See the breakdown of spending in the act’s two main categories: transportation (including roads and bridges; passenger and freight rail; airports, ports, and waterways; public transit; electric vehicles; safety; and reconnecting communities) and core infrastructure (which includes the power grid, broadband, water, environmental resiliency, and environmental remediation).
State by state

Some $300 billion in formula grants (including allocations to the Highway Trust Fund) will be disbursed through the IIJA. These formula grants provide predetermined funding to states based on various factors (for example, population size). Most formula-based funding is dedicated to roads and bridges—and most of that is dedicated to the two states with the most highway infrastructure: Texas and California.

The US Infrastructure Investment and Jobs Act will direct spending on formula grants to each of the 50 states.

While the IIJA aims to bring much-needed investment to the ageing infrastructure of the United States, the legislation also raises new questions, such as how to balance integrity, equity, and efficiency in administering new funds; how to scale up loan and grant programs quickly; how to ensure that new programs are designed to meet the evolving needs of individuals and businesses; and how to embed sustainability and equity in new infrastructure investments. By answering these and other important questions, government and business leaders can help ensure that the IIJA delivers a transformation for the US economy.
Construction steel news headlines

construction market and regulations

The European Union has announced an $850 billion-euro plan to support construction and climate projects, in what is being seen as an alternative to China's Belt and Road Initiative. The Global Gateway plan will reveal a €300 billion investment fund, to be rolled out between now and 2027. The European Commission said the plan 'will focus on offshore wind power - such as fibre optic cables, clean power transmission lines - to strengthen digital, transport and energy networks.'

Over the past year, supply chain snarls and pandemic-related uncertainty have continued to affect the construction industry, leading to high material costs, delays and difficulty finding skilled labor. At the same time, some costs remained relatively flat, the impact of COVID-19 is easing in much of the U.S. and passage of the Infrastructure Investment and Jobs Act (IIJA) will infuse federal money for a variety of projects. ConstructionDrive has picked up interesting graphs that illustrate some of the challenges contractors have faced and break down the machinations behind key pain points.

Investors reluctant to adopt green building practices on projects as RICS survey finds more than half of industry investors did not take biodiversity into account on schemes. Construction investors are still reluctant to adopt carbon neutral designs and building practices in projects; according to a report by the Royal Institution of Chartered Surveyors. The body's Q3 construction survey found that nearly a quarter of respondents said they had seen no shift at all in support towards green construction practices. An international coalition of construction experts has published what is said to be the world's first universal standard for reporting carbon dioxide emissions used in the building and lifecycle of structures in the industry. The International Cost Management Standard (ICMS) sets out a methodology for construction professionals and developers to account for the amount of embodied carbon their projects will create, whether through the delivery of new roads, schools, offices, housing or railways. It is hoped that ICMS will help the construction sector embrace net-zero as a global, interconnected industry.

Built environment can meet net zero by 2050 but only with urgent government action. Detailed roadmap launched at COP26 by coalition of architects and other construction professionals. A net zero built environment sector by 2050 is achievable - but only with urgent government action. More than 100 organisations led by the UK Green Building Council were today due to publish a Net Zero World Life Carbon Roadmap for the nation's built environment detailing the necessary actions they say government and industry must take to achieve net zero across the sector.

UK's infrastructure priorities over the next three decades revealed as National Infrastructure Commission sets out nine areas most in need of government investment ahead of official report due in 2023. Hydrogen, carbon capture and renewable energy will be at the heart of the official assessment of the UK's long-term infrastructure needs. The National Infrastructure Commission has set out the areas which are most in need of investment over the next 10 to 30 years to decarbonise the economy, protect the environment and 'level up' poorer regions.

The Euro zone housing market is heating up, increasing the chances of a correction in both the residential and commercial segments, the European Central Bank said in a stability report. With families building up savings during pandemic and increasingly working from home, demand for property is on the rise, pushing house price growth to over 7%, its fastest rate since 2005. "Risks of price corrections over the medium term have increased substantially amid rising estimates of house price overvaluations," the ECB said in a biannual stability report.

The average prices of new homes in China dropped 0.2% in October from September, the first such decrease since March 2015. Resale prices have also fallen in 64 of 70 major cities NBS tracks. New construction starts fell 33% year-on-year in October, deepening the 14% fall seen in September. Investment in the construction technology ecosystem reached a record level of US$4.5 billion in 2021, triple the amount of money invested in 2020. North America and Europe are the leading regions and the US is the country with the most companies in the Top 50 ConTech Startups 2021.

Engineers from South Korea have invented a cement-based composite that can be used in concrete to make structures that generate and store electricity through exposure to external mechanical forces, like footsteps, wind, rain, and waves. By turning structures into power sources, the cement will crack the problem of the built environment consuming 40% of the world's energy. Engineers from South Korea have invented a cement-based composite that can be used in concrete to make structures that generate and store electricity through exposure to external mechanical forces, like footsteps, wind, rain, and waves. By turning structures into power sources, the cement will crack the problem of the built environment consuming 40% of the world's energy. Engineers from South Korea have invented a cement-based composite that can be used in concrete to make structures that generate and store electricity through exposure to external mechanical forces, like footsteps, wind, rain, and waves. By turning structures into power sources, the cement will crack the problem of the built environment consuming 40% of the world's energy.

Steel industry to play an integral role in achieving net zero by 2050, according to the latest EY - CII report. "Government support in terms of logistics, ports, roads, rail and water supply amongst others is required by the steel sector for since March 2020. Steel production by 2030". The Indian steel sector has been vibrant and growing at a CAGR of about 5% to 6% year-on-year with V-shaped demand recovery post-covid.

Building materials & construction technologies

The governments of Canada, Germany, India, the UAE and the UK have signed a commitment to support the development of markets for low-carbon cement and concrete in their countries. The commitment will create market incentives for purchasers, review and update product standards to allow low-carbon materials to be used in all safe settings and promote their use through their public sector tendering rules.

The EU is to invest more than €1 bn in seven large-scale projects aimed at decarbonising European industry. Coming from the EU's Innovation Fund, the grants will support breakthrough technologies in energy-intensive industries in Belgium, Italy, Finland, France, the Netherlands, Norway, Spain and Sweden.

The United States will lift tariffs on some steel and aluminum products coming from Europe beginning Dec. 1 as part of an agreement to ease trade tensions between the two. The agreement sets a quota allowing a certain amount of steel and aluminum to be imported from the European Union duty-free, with anything above that level subject to existing tariffs. In response, the EU said it will remove billions of dollars worth of retaliatory tariffs on bourbon and other American-made products that were set to increase in December.

Construction sector players

designed by Danish firm Cobod. US infrastructure bill impacted the construction stocks. When markets opened, stocks of heavy-equipment manufacturer Caterpillar posted one of the biggest jumps, at more than 4%. Stocks of steel manufacturers United States Steel Corporation and Nucor Corporation also surged more than 4%. Alabama's Vulcan Materials—the country's largest producer of construction materials such as gravel, crushed stone, and sand—and North Carolina-headquartered Martin Marietta Materials—supplier of construction aggregates and heavy building materials—were both up more than 3%.

Dallas-based technical, professional and construction services firm Jacobs Engineering Group posted revenue of $3.6 billion in the Q4 2022, a 1.9% increase from Q4 2021. Jacobs' backlog rose to a record-high $26.6 billion year-over-year, a 12% increase. Another US-based multinational contractor Fluor announced that Q3 2021 revenue fell 10% year-over-year to $3.1 billion, due to lower revenue streams in its business units focused on government and infrastructure work. Backlog fell as well to $21 billion, down 21% from a year ago, but basically flat from what it showed in Q2 2021. In the meantime, Tutor Perini, took a hit to both its revenue and profits in the third quarter due to its public sector clients not paying their bills amid funding uncertainty as the infrastructure bill languishes in Congress. The firm's revenues fell 18% compared to a year ago. The firm picked up interesting graphs that illustrate some of the challenges contractors have faced and break down the machinations behind key pain points.

HOLCIM says it wants to reach at least 40% of sustainable financing by 2024 as it intends to put climate action, water preservation and safety at the heart of its strategy to do this. The company has linked this commitment with the completion of two sustainability-linked financing transactions worth above Euro2.8bn. It has also joined the United Nations Global Compact Chief Financial Officers' Taskforce alongside 60 companies representing a combined US$1.7Tn in market capitalisation which aligns members' finance strategies with the United Nations Sustainable Development Goals.

Four former senior staff members at Katerra, the offsite construction firm that declared bankruptcy earlier this year, have landed new roles with a London-based construction technology company. The former Katerra directors joined U.S. operations last month at Task Modular, which is opening its first U.S. office in the Seattle region. The company offers a digitised platform to modernise the design and construction process of modular buildings. It is working with its delivery partners on five pilot multifamily housing developments in the coming 12 months in the U.K. and is looking to gain similar traction in the U.S. starting in the first and second quarter in 2023.