

USE OF TIMBER

Tony Gibson *

Auckland Superdome to be built in structural laminated timber

Recently back from North America, the Director of Auckland Superdome Management Ltd, Mr John Rich, reports that all technical aspects associated with the construction of the dome have been solved in principle, and that laminated structural timber will definitely be used for this project. The dome, based on a super ellipsoidal icosahedron, is a project to startle the mind and excite the imagination of any structural engineer! The facility will offer covered seating for up to 65,000 people and will feature a playing surface adaptable to allow for a wide variety of sporting codes and events.

World's largest single-site medium density fibreboard plant at Nelson

How could the world's largest single-site MDF plant go largely unheralded and unnoticed in New Zealand? Designed by Ducker & West Ltd, this 54m clear span portal frame is one of the largest timber portal frame spans in the world and certainly the largest clear span timber portal known of in New Zealand. The clear floor area at 54 m by 104 m is large enough for a rugby field and presents a most impressive demonstration of New Zealand technology in terms of laminated structural engineered timber. Frames were fabricated by Hunter Timbers Ltd of Nelson.

Limit State Design Code for timber

Dr Bryan Walford reports from the Forest Research Institute as follows regarding the Limit State Design Code for timber: "The revision of the loading code will not provide for working stress design, only ultimate strength design. Thus the steel and timber codes will both require revision to the limit states format. Conversion to LSD is a simple matter if the new version is calibrated to the old, i.e. if essentially identical design solutions are to be obtained by both the working stress and the ultimate strength methods. Exact equivalence is not possible because, amongst other reasons, the load combination equations will differ between the two versions. The most notable changes for designers of typical low-rise domestic and commercial buildings will be the revised wind loadings. The new NZS4203 provides

different wind loads for serviceability and strength limit states with the latter generally increased over those previously used. An added complexity to wind load design is the inclusion of local topographic effects such as the high winds that occur in the lee of mountain ranges.

An emphasis on structural ductility will require new sections in the materials codes describing the details necessary to provide the expected ductility. For timber structures this will mean additional details on the design of ductile shear walls and moment resisting joints.

Along with the revision of NZS4203 is the proposed Act empowering the

Building Industry Authority. Don't hold your breath as the latest news is that the introduction of this legislation has been deferred to December 1991.

Finger-jointing green timber

A major breakthrough which will greatly improve the economics of structural timber, in a number of uses, is the development of a method of joining timber prior to kiln drying. This greatly reduces the wastage inherent in the existing process and should further enhance the competitiveness of structural engineered timber. Details are available from the Forest Research Institute, Private Bag 3020, Rotorua.

Extracts from the MOF market report (July 1991)

Carter Holt Harvey

Carter Holt Harvey (CHH) reported a profit of \$201 million (after extraordinary) for the year to March 1991. This was a 5% increase compared with the previous year.

New Zealand Forest Products (NZFP), which was acquired by CHH in June, is now fully integrated into the group.

CHH and its subsidiary NZFP both had their ratings slashed three points, by Australian Ratings from BB to B. Analysts expected the drop in view of CHH's high level of debt, much of which stems from its purchase of NZFP. CHH intends to lower its debt equity ratio to 50:50 by March 1992.

CHH has sold forestry rights to four Hawkes Bay forests (Esk, Mohaka, Gwavas and Kaweka) and part of its share in the mill at Whirinaki to its Japanese joint venture partners, Oji Paper Co and Sanyo-Kokusaku Pulp Co. The sale raised \$260 million. This will go towards payment for forestry rights purchased from the State. CHH expects to make a final payment of \$178 million to Government by about June 21.

The group also intends to sell NZFP's non-forestry assets and CHH's Chilean interests. Recent law changes in Chile should enhance CHH's prospects of selling its assets there.

CHH has joined other major New Zealand companies in raising cash through the placement of shares with

overseas institutions. The company has placed 54 million ordinary shares to raise \$100 million of new equity.

CHH plans to raise \$455 million through a one-for-three cash issue of ordinary shares. This issue will be made on shareholdings as at July 23, 1991.

NZFP's \$250 million modernisation programme of Kinleith pulp and paper mill is almost complete, and will lead the world in processing technology. The modernisation will reduce water use and clean the mill's effluents. The new bleaching process, which is central to the programme, has been patented and may be sold overseas.

Fletcher Challenge Ltd

Fletcher Challenge Ltd's (FCL's) subsidiary Tasman Pulp and Paper is expecting New Zealand newspapers to buy nearly 10% less newsprint this year.

Slumping North American forest products markets pushed Fletcher Challenge Canada into the red by \$NZ15.7 million for the first three months of this year. This loss was comparable to those of other forestry companies in the North American market.

The poor North American market coupled with the economic downturn in New Zealand is expected to cut FCL's group profit (after extraordinary) by 10% for the year ending June, as compared with its \$662 million profit last year. This would be FCL's first profit fall since 1983.

* J.A. Gibson consultants, P.O. Box 65-066, Auckland.

FCL raised \$292.5 million from the placement of 75 million shares in international markets, and has since gone to the market with another issue of capital notes. In the new issue, which comprises subordinated debt notes, FCL is offering \$100 million with the right to accept over-subscriptions of another \$100 million.

Juken Nissho

Site work has begun on Juken Nissho's \$40 million wood processing plant just south of Masterton. The plant, which may be open before Christmas, will produce high-quality timber products including plywood, laminated veneer lumber, finger-jointed timber and laminated timber products. All products from the mill will be exported.

ITT Rayonier

The US company ITT Rayonier has bought Kohitere Forest near Levin from the Department of Social Welfare. The 650 hectare forest has been established in a regular programme over 28 years. Unlike other State forestry sales, where forestry rights only were sold, this sale included the land and other assets.

Dunedin City Council

The Dunedin City Council is actively seeking buyers for its forest assets. The Council controls 10,500 ha of forest in Otago, valued in the 1989 balance sheet at \$31 million. The sale proposal has met with opposition.

London Pacific

The Securities Commission has ordered an inquiry into the affairs of London Pacific. The investigation is unlikely to have any effect on the operations of their Matakana Island milling business.

Blue Mountain Lumber

Blue Mountain Lumber will undertake a \$3 million upgrading of its Conical Hill sawmill to improve the efficiency of its utilisation of small diameter logs.

Processing proposal for native timber

A consortium of New Zealand, Australian and Asian interests is working on a proposal for a high-technology timber processing unit based in Southland to process native timber for an Asian niche market. A detailed development plan proposing low impact management systems is being prepared for Government.

Trade with China

Forestry was one of the main discussion areas at the fourteenth session of the New Zealand/China Joint Trade Commission, held in Wellington in late May. The agenda included forestry products trade, Chinese investment in New Zealand forestry and forestry co-operation. Although Wenita's investment in New Zealand is significant, it was nonetheless

considered only a beginning. While in New Zealand members of the Chinese delegation signed contracts to purchase logs and wood pulp.

The New Zealand China Trade Association has plans for a trade mission to China in October.

The Thai market

A delegation of Thai manufacturers visited New Zealand during late May, stimulating hopes of increased forestry products exports to Thailand. Thailand is a major producer of timber products, particularly furniture for export. A shortage of wood has increasingly forced manufacturers to seek external sources of timber. Thailand already imports, pulp, paper, medium density fibreboard and newsprint from New Zealand.

Exporting kitset homes

Fraemhos Industries, a Christchurch house building company, has begun exporting kitset houses to Japan. The total Japanese market is about 1.6 million houses per year, of which about 3000 are log homes.

Ports and shipping

Union Shipping's new vessel Union Rotoma will offer the first specialist roll-off service from Tauranga and Lyttelton to Brisbane. This will assist New Zealand's efforts to boost timber sales in Queensland. Previously, New Zealand timber has had to be trucked north from Sydney. A large timber production campaign is being launched to coincide with the new service.

Union Shipping has dropped its trans-Tasman timber freight rates by 6% in a package of rates and services negotiated with the New Zealand Timber Industry Federation (TIF). The new rate is \$85 per cubic metre, which includes wharf costs on both sides of the Tasman. The TIF believes the rate is still too high and aiming to reduce it to about \$68/m³.

In April a joint New Zealand and Australian Government decision was made to discontinue the trans-Tasman shipping accord which allows only New Zealand or Australian owned and crewed ships to operate between the two countries. This is expected to further reduce the cost of transporting timber to Australia.

A build-up of the log trade through Wellington has resulted in a shortage of storage space. Three log exporters currently use the port, and a fourth is due to commence in October.

Dunedin City Council has given planning approval for developments at Port Chalmers, including the reclamation of a further 3.93 hectares of log wharf at Back Beach. However, there have been objections, and a planning tribunal hearing is set to commence on September 2, 1991.

Loading productivity continues to increase at the Port of Tauranga as new methods of loading logs and timber are evaluated. This has given rise to claims that, for log and timber exports, Tauranga is now one of the most efficient and cheapest ports in the world.

There are considerable differences between on-shore costs at different ports. It is claimed that timber exporters pay \$23.28/m³ in port charges and cargo handling at the Port of Lyttelton compared with \$9.79/m³ at the Port of Tauranga.

New radiata pine strain

The Forest Research Institute has developed a new strain of radiata pine which consumes less energy during pulping and produces paper with better printing qualities. It also compares favourably with spruce, the wood generally used by the Japanese to produce high-quality paper.

Dutch Elm disease (DED)

During the 1990-91 season, 21 elm trees in 13 locations were found with Dutch Elm disease. This compares with 101 trees in 17 locations the previous season. Twenty-nine out of 94 pheromone traps set up by the Forest Research Institute collected 6482 beetles. Ninety-eight of the beetles caught were infected with the disease fungus. It has been determined that *Scolytus multistriatus*, the vector of the disease, has three generations a year. The Forest Disease Advisory Committee has recommended that the eradication programme should continue until it can be demonstrated that the disease is spreading. In case eradication is unsuccessful, clearance is being sought to import a viral-infected strain of the DED fungus to lessen its effect.

Eucalyptus Leaf Mining Sawfly

Eucalyptus Sawfly has been detected in the South Island for the first time at the Picton Ferry Terminal. Ministry of Forestry staff have destroyed the nine affected trees. About five Flowering Eucalyptus at Auckland Airport with a new suspect gall insect have also been destroyed.

Ministry of Forestry Protection staff have just completed the 1990-91 forest-tree health surveillance programme. They covered 1,055,451 ha of the exotic forest estate by aerial and ground survey, 17 forest nurseries, and most port environ areas twice, except Auckland which was covered three times.

Dave Kershaw