The Edge

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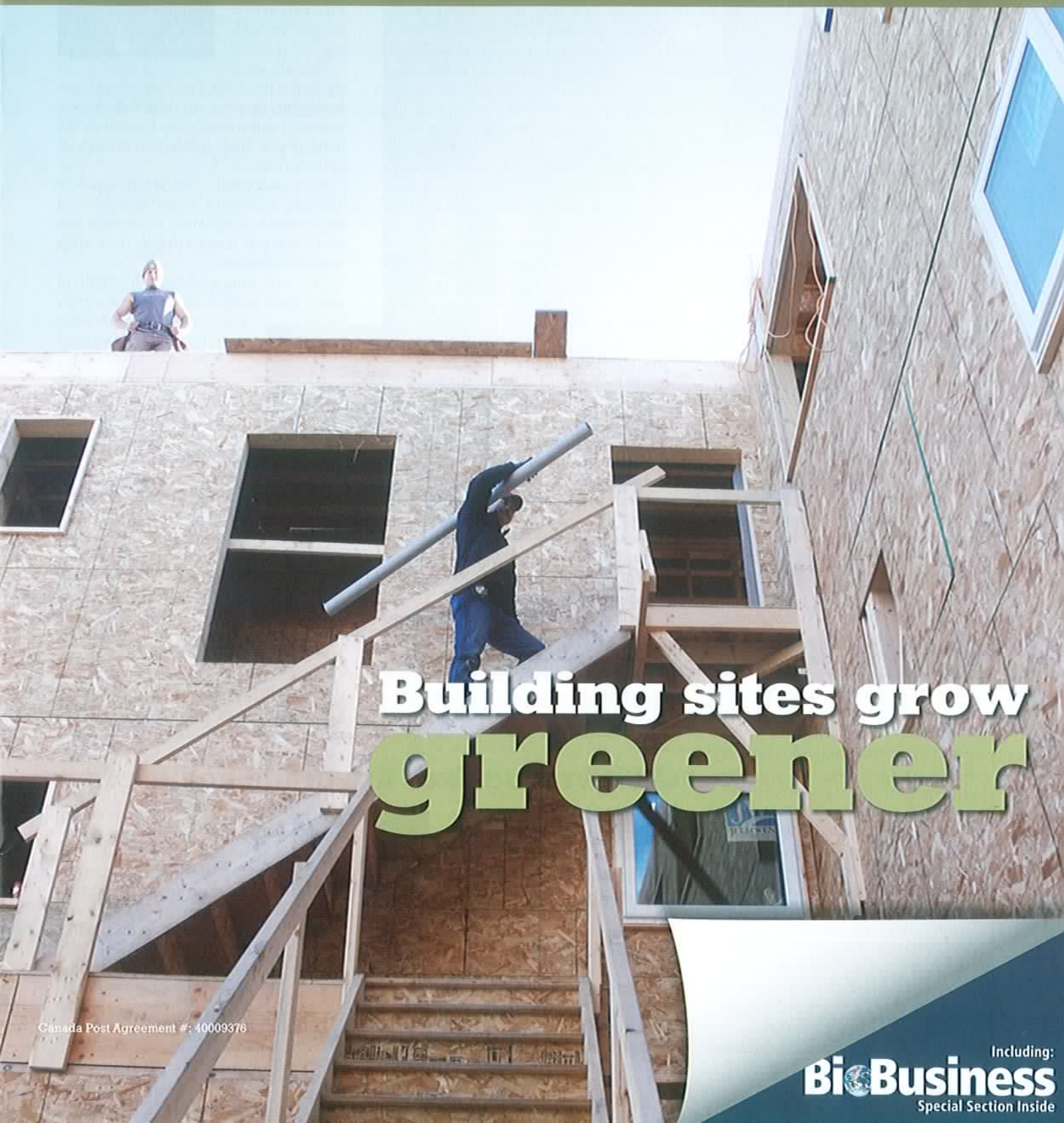

Building sites grow greener

Canada Post Agreement #: 40009376

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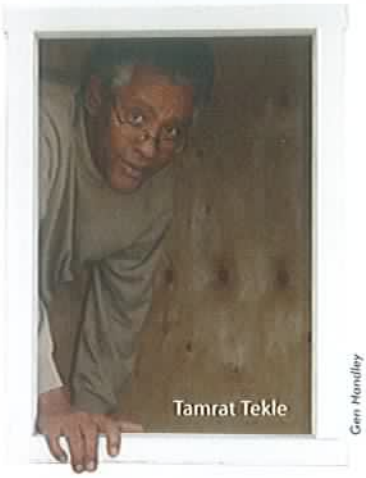
Local company turns waste fibre into building material

By GEN HANDLEY

Long before "fibre products" became an innovative catchphrase in Alberta, Tekle Technical Services (TTS) was exploring the potential of waste fibre from the forestry and agriculture industries.

"We saw the possibilities in agriculture and wood fibres and geared our internal R & D studies towards adding the value of residues which are currently unutilized or underutilized from these sectors," says TTS president Tamrat Tekle. "We were happy to see the recently released provincial biofibre roadmap, which reaffirms what we have been doing for the past several years."



Gen Handley

What TTS is doing is actually a microcosm of what is being advocated as the biofibre strategy in the province.

Tekle and his team of researchers and technical personnel are working on a structural insulated panel (SIP) that is not only very easy to assemble but is also very good on the environment. That's because the insulated layer of the TTS panel is comprised of as little as 20 per cent synthetic resins.

Instead, the insulation is a biocomposite made mostly from natural fibers such as barley, flax, wheat or hemp mixed with a small amount of synthetic resins as opposed to the current SIP systems, which use 100 per cent, Polyurethane or Polystyrene-based chemicals. In addition to the waste-fibre layer, customers can choose one or a combination of oriented strand board (OSB), plywood, drywall or hardboard as the surface material. Eventually these options will be replaced with next-generation TTS panels also made of fibres from agriculture, forestry and municipal waste.

"We are very excited about this product," Tekle says in his south Edmonton research lab. "It will be good for affordable housing because there'll be less on-site waste and less construction time which could mean less insurance costs - the building process will be a lot cheaper."

The panel has met most of the American National Standards Institute's (ANSI) requirements and the wood scientist says they would like to take it to the next stage by moving it from the lab bench to the pilot level. TTS has found most of the funding for a pilot project and is going ahead with this development.

"It is going slow until we are able to fill the funding gap that exists now and we are looking for some public sources for more funding to finalize the pilot project."

TTS has marketed the building product at a lower scale with an insulated playhouse which is an impressive display of what the SIP could do in normal-sized homes.

"All you need is one screw driver, two people and we advertise its assembly time to be less than three hours," a proud Tekle says with a smile. "But in the lab we actually did it in 35 minutes."

For more information, call Tekle at (780) 465-1532 or go to the TTS website at www.ttsfpl.com.

Edmonton workshop updates biofibre community

By GEN HANDLEY

Coordinators of the national Biofibres Initiative were in Edmonton this fall to provide a progress update to Alberta stakeholders.

The Composites Innovation Centre (CIC) of Manitoba presented at a workshop hosted by the Alberta Research Council and the Alberta government in late September. Trevor Kloeck, of Alberta Agriculture and Food, and Tamrat Tekle, president of TTS, are on the initiative's board of advisors.

"We can be proud that this initiative has helped provide the building blocks for biofibres to move into commercialization," Sean McKay, executive director of the CIC, told workshop participants.

Among the successes recorded since 2006 are development of new equipment to separate hemp fibres, the use of flax fibre for injection-moulded components on agricultural equipment and the identification of alternate fibres to replace peat moss for the horticultural trade.

CIC biocomposite project leader Mercedes Alcock has experimenting with flax fibres as a potential substitute for artificial fibres.

"There are some issues with flax fibre but overall we are satisfied that it can be used commercially," Alcock said. "It's cheaper than glass fibre and is much better for the environment because glass requires significant amounts of energy to produce."

One of the major areas in which biofibres have potential is the housing and construction industry.

Calgary's Pildysh Technologies, a company that specializes in engineered materials and processes, is exploring biofibre as an additive in concrete. Vice president of engineering Richard Beuble said concrete containing natural fibres is lighter, more flexible and can be more insulating as well as resistant to shrinking and cracking.

"Plus there are environmental incentives because the concrete production process is a major greenhouse gas contributor," Beuble said at the workshop.

He noted that one tonne of cement can create roughly one tonne of carbon dioxide, which is significant considering Alberta's consumption of concrete is about two million tonnes a year. Normally the concrete market uses poly and steel fibres to strengthen its products, but biofibres may provide a greener option.

Green building materials have the attention of Enervision executive director Alex Joseph. His company works with industry and researchers to explore more environmentally friendly ways of building communities.

"There are opportunities in every component of the building that can be manufactured differently and more favourably for the environment," he said. "Biofibres can play a big role in that."

For more information on the Composites Innovations Institute, visit www.compositesinnovation.ca.