

June 12, 2009



MEGA BUILDING SYSTEMS

A recent test in Ontario and the U.S. showed that steel framed buildings should last for 270 years.

Light Gauge Steel

Developer makes the case for steel instead of wood

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correspondent

A western Canadian developer wants builders who use wood to reconsider their choice.

"It won't rust, burn, rot, mould. There's no nail-popping," said Frank Jamali.

"If you design it right, it can last hundreds of years."

Jamali, an engineer, and now a B.C.-based business developer is talking about a pre-fabricated, light gauge, galvanized steel framing system.

His company, Mega Building Systems (MBS), holds the Canadian and U.S. patents.

At the company's 90,000-square-foot Calgary plant, it rolls out what amounts to the entire super-structure of buildings up to eight storeys tall.

"What makes MBS unique is that we're one-stop shopping. We have engineering, manufacturing, site erection and crane services," Jamali said.

The company produces light gauge steel framing, steel joists and steel joist girders.

MBS's light weight, non-combustible components include load-bearing walls, floors and roof.

The heart of the system is the isolation beam, formed when concrete is poured over steel pan decking directly above load-bearing walls.

Wall panels are pre-built and panellized.

Floors are made from shallow, open-web steel joist and light-form deck with a regular concrete topping.

Roofs can be standard wooden-truss, light gauge steel-truss or the flat built-up variety.

All pieces are shipped to the job site and quickly assembled because they are pre-cut.

"It's like Lego for children. Every piece has a number on it," Jamali said.

More than 80 per cent of the steel (cold-formed, galvanized steel rolls) used by MBS is recycled, coming from various mills, he added.

Cold-formed steel is actually formed at room temperature into flat sections that are usually one to two millimetres thick, but can be formed up to one-inch thick.

Capable of replacing formed concrete, block and plank, structural red-iron and wood structures, MBS's products are suitable for hotels, motels, condominiums, apartments, seniors' or students' residences and care homes.

In the U.S., where MBS's three offices have shrunk to one, it's common for single-family homes to be built with light gauge steel framing, Jamali said.

In fact, he likes to point out how steel framing is preferable to wood-frame construction.

Combustible, wood frame structures have a life of about 30 to 40 years.

Shrinkage, cracked drywall, nail pops, plumbing problems, lost energy and water penetration are risks associated with wood construction, he said.

A five-year study conducted on test homes in the U.S. and Ontario found that light gauge, steel frame buildings should last about 270 years.

The Steel Framing Alliance and the U.S.-based National Association of Home Builders based their findings on results, which showed that almost no galvanizing was lost.

But Steven Fox, general manager of the Cambridge, Ontario-based Canadian Sheet Steel Building Institute, said that the environment and maintenance play a role in a structure's longevity.

And, when combined with the fact that the typical lifespan of a building is 40 to 50 years, the almost three-century existence may not be that significant.

Other advantages over wood include about two per cent scrap/waste versus 20 per cent for lumber, fire ratings of up to two hours, noise reduction, insurance discounts, straight walls and square corners.

But the stable, recyclable material comes at a higher price.

In Canada, MBS's products sell for about 15 to 20 per cent more than wood.

"Steel, piece per piece, is more expensive than wood," said Fox, also an engineer.

He didn't have statistics documenting the extent of steel frame construction in Canada, but he did say there are roadblocks.

In addition to higher material costs, a ready supply of experienced labour may be hard to secure.

Also, some areas in Canada may not have the infrastructure or equipment to handle the projects.

But with a trained crew, construction projects using the system are not more difficult than traditional wood

construction, Fox added.

In fact, such buildings often go up faster.

A crew of about 10, including a crane, can build 12,000 square feet of walls and floors in one week, Jamali said.

The Mega Group of companies started 20 years ago in Victoria with a crane division. One decade later, it moved into light gauge steel framing and today has about 150 employees in the Calgary factory, Toronto engineering office and the Surrey administrative premises.

MBS is not a member of the Canadian Sheet Steel Building Institute, which has 27 members, 80 per cent of them located in Ontario and Quebec.



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