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Image courtesy Busby Perkins+Will

A proposed office tower adjacent to General Motors Place is considered to be the first carbon-neutral tower in North America.

Environment

Carbon-neutral office tower planned for downtown Vancouver

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A planned addition to the Vancouver skyline will come complete with a whole lot of firsts.

For one thing, it will be the first office tower built from the ground up in the city's core in more than a decade.

For another, it will be the first ever carbon-neutral tower built in Canada and likely in North America. It will also be among the first few towers built in years with opening windows.

The 22-storey structure is being proposed not just next to, but attached to General Motors Place by a development group called Tri Power.

The architects are the well known Vancouver firm of Busby Perkins Will.

The tower will be well out in front of the pack when it comes to environmental sensitivity.

This, say architects Z Smith and Jim Huffman, is the result of both leading edge design and technology and a unique site.

The building will be located beside the Georgia Viaduct in a very tight lot.

As a result of the size of the lot, the floor plates in the tower will be considerably smaller than normal. This in turn means that everyone working in it will be able to use natural daylight at their work stations.

Likewise the heating and cooling is a departure from the norm. Both heating and cooling are being provided by radiant concrete ceiling slabs.

This means the spaces between the floors have been made smaller. So much smaller in fact that three extra floors were able to be added to the structure and still keep it within city guidelines.

The revenue from the extra floors more than justifies the couple of extra million dollars the system will cost.

The designers insist that opening a window won't toss the air system out of sync.

As the HVAC doesn't depend on blown air, an open window will not throw it off balance.

In addition, state-of-the-art computer technology will tell the system when a window is open in an office — and it will simply stop supplying either hot or cold air to that space.

The benefits of the marriage between the two structures spreads to the outside as well. No additional parking is needed.

Enough parking exists around GM Place and B.C. Place to serve the tower during the day while remaining available for sports fans at night.

The real key to the project, however, is how it will interact with General Motors Place.

The two will share facilities to the benefit of both. For example, rain water from the arena's vast roof may well be used by the tower.

Ice shavings from the arena will be used to help cool the office building. The cooling tower on the arena tosses a lot of hot air into the atmosphere.

Consultants Stantec plan to capture that hot air and will use some of it in the office tower.

Some of it will be combined with heat produced by the many computer server rooms in the tower and stored in a ground source tank. When it is needed by the arena — as in the case of heat for a rock concert — the office tower will give it back.

Smith explains how the tower will become effectively "carbon neutral". The tower, he says, will be an all electric building and most electricity in British Columbia is not generated by burning coal. It is generated by hydro dams.

The 10 per cent that does come from fossil fuels, he explains, will be offset by a reduction in the fossil fuel heating currently used by the arena thanks to the tower sending the arena its excess heat.

“By building this tower, the amount of fossil fuel used in GM Place will go down. The tower will result in less fossil fuels being used in the arena and we will in effect become a carbon neutral office tower.”

The final incentive for the tower is the fact that tenants will be able to walk directly from their offices to their boxes or seats in GM Place.