

# Port Coquitlam firm figures out how to mass produce telescopes that see billions of light years

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Minister of Industry James Moore watches a robot at Dynamic Structures in Port Coquitlam, B.C. Friday, Sept. 27, 2013. Dynamic Structures showed off their new robot that will be used in making parts of their new telescopes that will increase discoveries about the solar system and the galaxy.

**Photograph by:** THE CANADIAN PRESS, Jonathan Hayward

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PORT COQUITLAM, B.C. - If the inventors of a so-called game-changing telescope have their way, there will be a lot more discoveries about our solar system, galaxy and the universe.

The British Columbia firm Dynamic Structures has developed a new generation of telescopes that makes them financially feasible to build.

Company CEO Guy Nelson said Friday that many universities dream of having an observatory, but traditional telescopes require heavy mirrors supported by large observatories.

But using robots and the company's new optical technology, Dynamic said it can mass produce light-weight mirrors with the ability to see millions, and even billions of light years away.

Dynamic Structures founder David Halliday said they've developed the 30 Metre Telescope that is able to take atmosphere away with a flexible lens, focusing on nothing but what the viewer wants to see.

"And behind that flexible lens you've got a series of actuators — which are little pistons that can move very, very rapidly, these pistons can change the shape of the surface," he explained.

In order for the telescope to get a reference point, a laser is sent into the sodium layer, creating a star of reference, he said.

"So you measure that, it gives you a wave and then through a giant mathematical model you reverse that, and make it even. Now you've got a straight line and that information, you poke that back into the servers that control the flexible mirror and if you control it properly, you take the atmosphere away," he said.

The company has always made telescopes, but over the last 20 years has used that technology for amusement rides.

Nelson said it started when Halliday and an engineer with the U.S. government collaborated on a project. That engineer later became the head of "imagineering" at The Walt Disney Company.

He said Dynamic was called in when the engineer thought the firm could solve a problem on one of its rides at Epcot Centre.

Halliday said they're simply transferring their manufacturing ability, sharing it with academia and converting it into real solutions.

"Many times what happens is it stops at the academic level and you'd not be able to cultivate that into a practical, applied solution. That's what we're doing," he said.

The firm, which employs about 130 people in Port Coquitlam, B.C., has a backlog of about \$100 million worth of amusement park rides to be exported to the U.S. and China.

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