

# construction

## IN VANCOUVER

## INNOVATION: CONTECH OFFERS OPPORTUNITIES TO INCREASE PRODUCTIVITY, REDUCE WASTE

Recent study highlights local construction technology ecosystem

BY BRIGITTE PETERSEN

**M**etro Vancouver construction companies have much to gain from embracing the emerging construction technology (contech) industry, but there is still more work to do to connect the two sectors and reduce barriers to the adoption of new ways of building, according to a recent report.

The whitepaper, titled *The Contech Ecosystem in Metro Vancouver*, provides a snapshot of the local \$426 million contech industry, including information about active companies. The whitepaper, which summarizes a **British Columbia Institute of Technology** research project and report completed for the **Vancouver Economic Commission (VEC)** and consulting firm **Scius Advisory**, also outlines potential barriers to technology adoption and innovation. VEC and Scius co-managed the project with the support of the **Vancouver Regional Construction Association**.

Contech includes innovative tools used during construction, such as machinery, modifications and software, to improve productivity, reduce material waste and result in higher-performance buildings.

**George Benson**, the VEC's sector manager for the built environment, said while the rate of technology adoption by architecture, engineering and construction industries has been historically low, contech should be viewed as an opportunity, not a barrier.

"These kinds of studies help us visualize how policy decisions related to one sector – construction

– can unlock opportunities for others, like tech," Benson said. "Specifically, the insights into the more technical gaps and opportunities in buildings highlight where we will need more and different technologies to meet our high-performance buildings' needs."

Contech became recognizable as an industry in the early 2000s with the emergence of new digital technologies, but full adoption by the construction sector still has a long way to go, according to Benson.

"Contech, or technologically enabled construction, is absolutely the future of the industry," he said. "Smarter, more widespread usage of technology will be critical to achieving high-performance and lower-cost projects. That applies to whether we're talking about labour shortages or achieving compliance with new high-performance building regulations, like the BC Energy Step Code."

The report, authored by **Lara Azarcon** and **Felipe Calçado** and published in July, examines Metro Vancouver's rapidly evolving technology ecosystem – one of the most important value-added sectors. It found that while links between construction and technology are limited, many opportunities exist for cross-industry connections. With the Lower Mainland's construction industry facing a labour shortage of about 17,000 workers by 2029, Vancouver-made technologies like software and robotics could provide an alternative.

"As many workers move to retire and worker preferences change,



Computer-controlled prefabrication is an important aspect of the growing construction technology sector | UNIVERSITY OF B.C. - CENTRE FOR ADVANCED WOOD PROCESSING

construction will have to fill those gaps with technology," Benson said.

The study identified 66 contech companies in Vancouver with construction applications for robotics, internet of things (IoT), modularization, digital twinning, analytics and software development. Prefabrication and modular construction is the largest contech category by revenue. Nine publicly traded multinational contech companies have Vancouver offices including **CAT Equipment**, **Oracle** and **General Electric**.

About 1,600 people work in Vancouver's private-sector contech industry, mostly in robotics, drones, 3D printing and modularization. The local industry is in

its early stages of development and will need "proper alignment with the whole of the construction sector" to continue to grow, according to the report.

Contech can also support the region's climate goals, according to the report, as technologies help reduce the environmental footprint of construction and building operations, which are responsible for half of Metro Vancouver's greenhouse gas emissions and 30% of the solid waste stream.

Benson agreed that technology helps the construction industry achieve higher-performance end products at a lower cost while reducing waste, citing the **University of Texas'** Construction Industry Institute as an example. The institute found that contech

adoption can increase productivity by up to 40%.

"Contech enables more advanced, dynamic modelling of building design scenarios and performance," he explained. "Digital twinning solutions, for example, can help with modelling to ensure a building meets performance standards in health and safety or carbon pollution reduction before it's even built."

Contech can also support the construction industry during the pandemic, according to Benson, with the use of software to improve efficiencies, co-ordination and off-site assembly.

Benson said more work needs to be done to spread the word about how the emerging contech sector can support Metro Vancouver construction companies. The next step is to work with governments, developers and asset owners to create procurement structures that reduce risk in technology adoption – especially for smaller companies – and provide additional regulatory measures, industry strategies and road maps, according to Benson.

**Helen Goodland**, Scius Advisory's head of research and innovation, said as B.C.'s construction industry faces increasingly stringent codes, a persistent labour shortage, a proliferation of new technologies and increasing competition, it needs to invest more in research and development.

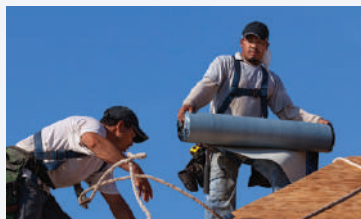
"The purpose of this study was to raise awareness of the technology providers on their doorstep and give construction firms the opportunity to create the relationships necessary to help them get started," Goodland said. ■

**FIND IT**



### CONSTRUCTIVE COMMENT B2

VRCA president Fiona Famulak on the need for the BC NDP majority government to seek a middle ground balancing business needs with the party's traditional policy agenda



### HUMAN RESOURCES: The business case for diversity and inclusion in the construction industry B2

### LABOUR: New Canadians can reduce trades shortage B3



### LEGAL SPECS B4

Norm Streu and Christopher Hirst on the responsibility of construction employers to take steps toward ensuring workers are not unlawfully discriminated against while on the job



# Premier needs to strike balance between left-leaning and business-friendly

Government should seek middle ground to buoy pandemic-battered economy



*B.C.'s economy is in a precarious state. Whole segments have been devastated by COVID-19 restrictions and other sectors are now feeling the longer-term effects*

BY FIONA FAMULAK

A new year should be filled with hope and optimism, and while there are many reasons for hope, my optimism is tempered by the economic impact of COVID-19.

Let me start by congratulating everyone elected to B.C.'s Legislative Assembly and offering thanks to all who agreed to serve in Premier **John Horgan's** cabinet. You have accepted the enormous task of leading British Columbians through the pandemic intact.

Elections, by their nature, are divisive with political leaders putting forward competing visions to win votes. Once elected, the challenge is to unify voters and govern in the best interest of all residents.

The challenge is no more acute than in the United States where President-elect **Joe Biden** is

demonstrating his eagerness to bridge the divide between Democrats and Republicans. In his acceptance speech last November, he pledged to be a president who unifies rather than divides; one who doesn't see Democratic states or Republican states, only the United States.

B.C.'s political divide is not as extreme, however, the desire to appeal to a political base is just as prevalent in our political parties. It's why we see large policy swings every time there's a change in governing party.

Now that Premier Horgan has a majority government, he has a choice to make: pursue policies that appeal to his party's supporters at the expense of the business community, or seek to balance his party's agenda with policies that will aid in strengthening the business community and provincial economy.

B.C.'s economy is in a precarious

state. Whole segments have been devastated by COVID-19 restrictions and other sectors are now feeling the longer-term effects. Although deemed an essential service, the construction industry is seeing fewer projects tendered these days as private investment pauses until the economy is stronger.

The mandate letters Horgan gave his cabinet ministers when they were sworn in suggest the traditional **BC NDP** agenda items are a high priority. However, I respectfully believe the premier has the opportunity to take a cue from the president-elect and aim to govern in the middle by striking a balance between left-leaning policies and right-leaning business-friendly initiatives.

This is not to suggest the premier shelve the entirety of his party's left-leaning policies in favour of economic investment. Rather, our government must

find a balance between supporting British Columbians so they can go to work safely and ensuring businesses stay in business. Anything less puts the future success of our business community at risk, jobs on the line and B.C.'s economic recovery in jeopardy.

We therefore look forward to working with Premier Horgan and his government to find that middle ground where a social agenda and business initiatives can co-exist and build a provincial economy that is good for all British Columbians. ■

Fiona Famulak is president of the Vancouver Regional Construction Association, which represents the general and trade contractors, manufacturers, suppliers and professional service providers that operate as both union and open-shop employers in the industrial, commercial, institutional and high-rise residential construction industry.

## HR: THE BUSINESS CASE FOR DIVERSITY AND INCLUSION

Diverse workforce brings fresh perspectives, reduces turnover, fosters innovation, says president of Canadian Construction Association

BY PETER CAULFIELD

The Canadian construction industry is looking for workers.

"Construction is facing a talent shortage all across Canada," said **Mary Van Buren**, president of **Canadian Construction Association (CCA)**. "There is a looming shortage because many experienced workers are retiring and because of a decline in the number of newcomers to the country."

To fill the gap, Van Buren said,

the industry must focus its recruitment efforts on traditionally underrepresented groups, such as women, Indigenous Canadians and new Canadians.

"Those construction companies that can attract a diverse workforce will succeed," said Van Buren.

"More diversity leads to better decisions, which leads to more success."

The CCA said there are solid business reasons that back diversity and inclusion in the construction workplace.

### Accelerate innovation with fresh ideas

Diverse perspectives reduce the risk of groupthink, as well as the temptation to do things the way they've always been done.

Cultural differences bring in new ways of thinking, and women introduce fresh perspectives and new ideas about the best way to get the job done.

### Increase productivity, revenue

Exclusionary behaviour makes employees feel they don't belong. Not only is that bad in its own

right, but it also hurts productivity and company revenue.

Exclusion reduces the mental and emotional connection employees feel to their employer, and that's bad for business.

### Reduce employee turnover

Fostering an inclusive culture as part of a robust human resources and talent management strategy helps reduce employee turnover and gives companies a competitive edge when hiring because many prospective employees believe an inclusive organization is

a better place to work.

### Drive a positive safety culture

Diversity and inclusion improve safety by encouraging input from all employees. It creates engagement among a larger group of people and makes it easier for employees to bring attention to unsafe behavior.

### Expand market share with supplier diversity

Businesses owned by minorities

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*Congratulations!*  
**Vanessa Werden**  
Construction Lawyer, Jenkins Marzban Logan LLP

Vanessa was included in On-Site Magazine's 2020 list of Top 40 professionals under 40 in Canadian Construction.

40 UNDER 40  
IN CANADIAN CONSTRUCTION

Werden provides a broad range of legal services across the construction industry during all phases of construction, including procurement and tendering advice, contract drafting, negotiation and review, builders liens, mid and post-project dispute resolution.

Beyond her professional experience, which includes counsel to national top-tier contractors, fabricators and project owners on major infrastructure and heavy construction projects, Werden serves as President of Canadian Construction Women, which connects and assists women in building business and mentoring relationships.

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## LABOUR: NEW CANADIANS CAN REDUCE TRADES SHORTAGE

Changes to immigration policies are needed to attract workers who can meet skilled trades construction needs

BY PETER MITHAM

While other sectors have seen demand for workers slacken as a result of COVID-19, demand for skilled construction workers remains as sharp as ever.

Building contractors provide essential services, and work sites were allowed to continue operating under strict protocols designed to limit the spread of disease.

The economy kept humming, and contractors continued to scramble for workers.

“Construction is insane right now. Insane,” said **Jordana Lloyd**, project manager with **ACE Plumbing and Heating**, a division of **Bricor Mechanical Ltd.** in Kelowna. “Right now, anyone with actual experience is so, so helpful to our business. When it’s so busy like this, man – anyone with any skills is so valued.”

Since the 1970s, declining fertility rates have made immigration a key driver of Canada’s

population growth. As Canada’s population continues to age, the country’s reliance on immigration will only intensify, especially in sectors where the number of people in the domestic workforce is unable to keep pace with the demand for labour.

Of the approximately 90 people at ACE, about 10% are immigrants. Many came with credentials from other countries. Others, such as **Luke Edwards**, brought experience from his native South Africa and a desire to learn a trade.

Edwards connected with ACE through the **BC Construction Association’s** Integrating Newcomers program, which works with immigrants in their countries of origin, then connects them with the Skilled Trades Employment Program on arrival.

“He was around 28, a little older and definitely ready to get into a trade and settle in, and that’s definitely attractive,” Lloyd said. “We hired him and he is now going to become a plumber. It was a



The B.C. construction industry is increasingly relying on foreign workers to keep up with demand for labour | TERRYJ/E+/GETTY IMAGES

no-brainer for us.”

The hiring challenges facing the industry are documented in a new report from **BuildForce Canada**, which provides the construction industry with the labour market intelligence it needs to manage its workforce requirements. BuildForce anticipates a nation-wide shortage of up to 82,000 skilled

workers by the end of the decade. B.C. is forecast to be 23,000 workers short in the same period.

“With almost a quarter of the current construction labour force expected to retire by 2029, the industry’s need for workers will only become more pressing with each passing year,” the report notes. “For Canada and its

construction industry, there is quite simply no time to waste.”

The shortage could hit hard in Metro Vancouver, where immigrants are fundamental to the economy and the skills shortage has not been addressed by training programs.

“Without changes to federal immigration policies, construction may find it challenging to attract the qualified skilled trades professionals it needs now and in future,” said **Fiona Famulak**, president of the **Vancouver Regional Construction Association**.

Canada’s immigration policies over the past several decades have skewed toward admitting immigrants with higher levels of education, meaning those arriving in Canada are less likely to be drawn to careers in the construction industry. Between 2006 and 2018, immigrants entering Canada with skilled trades certification dropped by 2%, whereas

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# Employers should be aware of their duty to accommodate employees

Construction companies running afoul of their duty could face a civil claim or human rights complaint



**NORM STREU AND CHRISTOPHER HIRST**

**W**ork on construction sites is often physically demanding and frequently poses a risk of injury. In this demanding and potentially dangerous environment, what are the obligations of construction employers to accommodate the physical, mental, religious or cultural circumstances of their employees?

The law imposes on all employers a duty to accommodate employees, meaning the employer must take reasonable steps to accommodate the employee when the employee has suffered or will suffer discrimination from a working rule or condition.

Courts have held that the goal of this duty is achieved by preventing the exclusion of individuals from employment opportunities that are not based on their actual abilities, but on attributed ones.

If an employee is otherwise fit for work, he or she cannot be unfairly excluded where working conditions can be adjusted without undue hardship on the employer.

Failure to meet the duty to accommodate on the part of an employer can result in a civil claim for wrongful dismissal or in a human rights complaint.

Under the B.C. Human Rights Code a person must not without a reasonable justification discriminate against a person or class of persons regarding any accommodation, service or facility, customarily available to the public because of the race, colour, ancestry, place of origin, religion, marital status, family status, physical or mental disability, sex, sexual orientation, gender identity or expression, or age of that person or class of persons.

This means that construction employers need to take care to ensure that any rules, policies or practices they put in place

are based on bona fide occupational requirements and do not infringe upon any ground of discrimination.

Employers must also ensure that they are flexible enough with each employee to allow accommodation for the particular circumstances of that individual when discrimination is potentially at issue.

By way of an example, a rule that no weapons or knives are allowed on a construction site may seem uncontroversial.

If however, a Sikh employee wears a Kirpan (a small sword or dagger) during work at a site, there is very likely a duty to accommodate the employee by allowing him or her to wear the Kirpan despite that rule. The reason for this is that the Kirpan is a significant religious symbol, the wearing of which is mandatory for initiated Sikhs.

Accordingly, only if the Kirpan was a danger in relation to the employee's specific tasks on site would a prohibition on

wearing the Kirpan potentially be justified.

Balancing the rights of individuals against the needs of the workplace can be challenging for employers.

Achieving that balance on the construction work site can be especially difficult by reason of the inherent physical demands and safety risks of most construction work places.

In this regard, **WorkSafeBC** and the **BC Human Rights Tribunal** provide useful guidance on their websites to assist employers in navigating this difficult area.

Construction employers should be aware of the specific issues that effect construction, tread carefully, and seek advice where appropriate. ■

Norm Streu is a former chair of the VRCA board of directors, a lawyer and an entrepreneur. Christopher Hirst is managing partner and leader of the construction and engineering group at Alexander Holburn Beaudin + Lang LLP.



*Balancing the rights of individuals against the needs of the workplace can be challenging for employers*

## NEW CANADIANS

CONTINUED FROM PAGE B3

those with college-level education or higher increased by 72%.

Part of the rationale for current government immigration policies is that immigrants with higher levels of education are more adaptable and can more easily integrate into Canadian society. The belief is that lower-skilled immigrants have fewer job opportunities and could become a burden on Canadian society if they are unable to secure permanent employment.

This policy bias has had a

significant impact on the construction sector, making it difficult for employers to recruit newcomers with the necessary trade certificates. Consequently, only 13.5% of immigrants working in construction have a trade certificate, compared to 28% of Canadian-born workers.

"While enhanced domestic recruitment and the recruitment of individuals with the right skill mix from other sectors may reduce this [labour supply] gap, it won't be sufficient to make up for the entire anticipated shortfall," explained **Bill Ferreira**, executive director of BuildForce Canada.

"Industry needs to work more closely with **Immigration, Refugees and Citizenship Canada** to facilitate the selection of immigrants with the skilled trades Canada needs."

This includes both promoting Canada as a destination to potential immigrants as well as facilitating their transition into the country's labour force. B.C.'s Integrating Newcomers program is a model of the outreach needed on a national level, he said.

The industry also has to make sure job sites are welcoming. While women, a long-standing priority of government diversity

initiatives, now represent about 6% of all construction trades, and Indigenous workers reflect their share of the general population, BuildForce reports that visible minorities make up less than 5% of immigrants in the domestic construction workforce.

"There is more representation on worksites in British Columbia in general, but does that mean we don't have to change the culture of construction to make it more acceptable for everybody? Absolutely not," said **Chris Atchison**, president of the BC Construction Association. "This is not going to be an overnight

switch-the-dial because the government is pushing on different priorities, but this is what we feel is important."

The province's Builders Code initiative is working to address the issue by encouraging more hospitable workplaces. Without better representation from new immigrants and visible minorities, the industry will find it harder to attract workers from these sectors in the future. Immigrants and visible minorities are more comfortable joining industries where they are welcome and where people who look like them are already working. ■



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## THE BUSINESS CASE

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and women generate large amounts of revenue and employ scores of people.

Working with suppliers who practice diversity and inclusion has many benefits. Not only is it good for business, it also helps attract and retain top talent and improves a company's reputation with its customers.

**Enhance your reputation, expand your customer base**  
Having a diverse group of employees helps businesses

understand and meet their customers' needs.

**Taylor Manhas**, safety co-ordinator at **Westcana Electric Inc.**, which has offices throughout B.C., says the company recognizes the importance of diversity and inclusion on all its work sites.

"We believe in not only the importance of hiring diverse employees, but training and working to retain them as well," Manhas said.

To find out more about the many career opportunities in construction, go to [www.talentfitthere.ca](http://www.talentfitthere.ca). ■