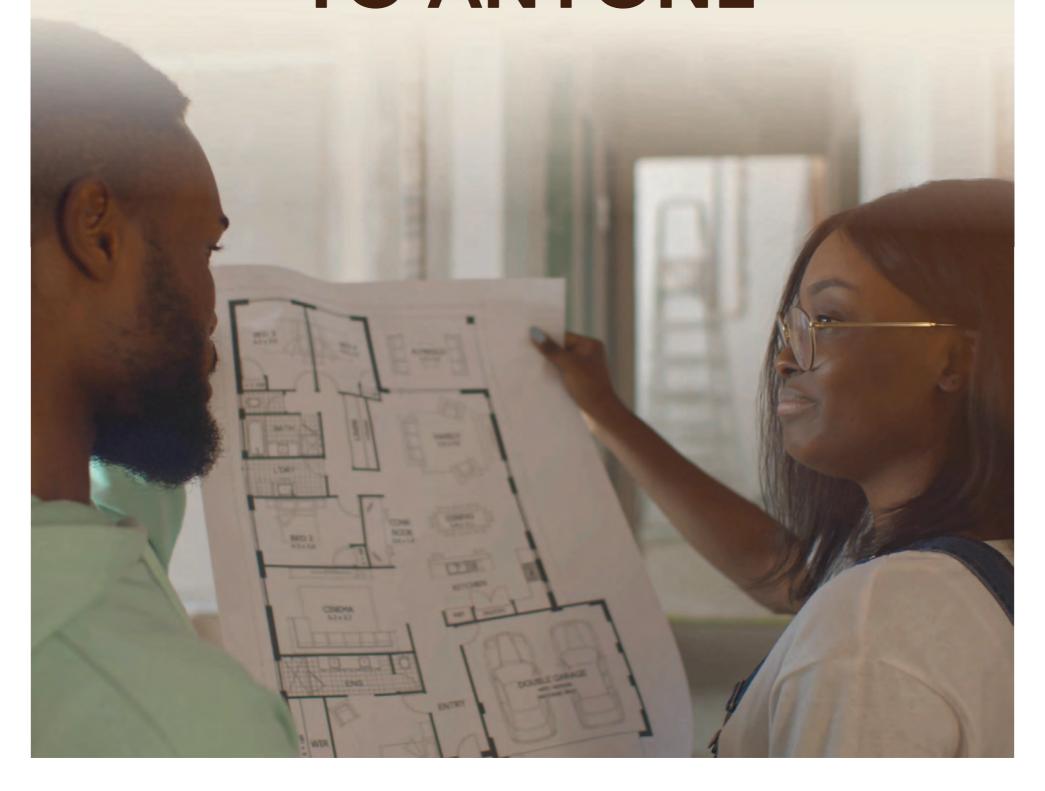




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Digitalisation is set to play an important part in the construction industry.

RYAN HAMILTON-DAVIS

ith covid19, war in Europe and other factors wreaking havoc worldwide it is no surprise that contractors in TT, like many other businesses, were not insulated from the economic shocks, volatility and uncertainty of the past two years.

Contractors, from major companies to private and artisan home-builders, felt the effects of multiple nationwide and worldwide closures and shutdowns, reductions in productivity in areas affecting the supply of raw materials, and shifts in supply and demand leading to unprecedented spikes in prices across the board. These shocks were felt in particular by small private contractors who depended on home projects building and renovating homes - to keep the industry afloat.

Economies are slowly reopening and things are returning to normal incrementally, but high production costs persist, leading customers to think twice about their home-building and renovations. Contractors now need to find new, inventive and affordable ways to kick-start the industry and return to prepandemic levels of success.

That is why, from foundation to finish, the construction industry is now making use of innovation and technology to mitigate spikes in costs, volatility and uncertainty in the construction

TECHNOLOGY AND INNOVATION:

Building blocks of recovery in construction sector



Workmen Nelson Ortiz, centre, Juan Serrano, left, and Junior Chirinos move concrete blocks to the top floor of a building on a construction site at Crooks River Road, Scarborough. PHOTO BY DAVID REID

Contractors between a rock and a hard place

Among all the shocks and challenges affecting the contracting sector in TT, none have had a greater effect on the industry than the challenges that came out of availability and cost of items, as well as freight.

TT Contractors Association president Glenn Mahabirsingh explained that the prices of materials and freight costs have been the greatest challenges coming out of the two-year battle with covid19. He said because of the volatility, contractors are now finding it difficult to gauge the costs behind building and renovating homes.

"Most manufacturers and suppliers have a limitation on their quotations. When a supplier gives you a quote for materials they sometimes give a one-day validity period or maximum a week."

"When contractors are asked to tender or bid for a project, most ask for 30 to 90 days or even as much as 120 days validity," he said. "So when a contractor gives a price, a client it is expected that the contractor would hold its prices for at least three to four months. So it is very difficult for contractors to predict or make an educated assessment as to where the prices will go."

> **TECHNOLOGY** continues on pages 4&5 >>

TECHNOLOGY from page 3

Prices have sky-rocketed because of several factors, many of which came out of the shut-downs and lock downs because of covid19 over the past two years. Last year TCL announced a 15 per cent hike in its prices from December 20. It said a 4.5 kg bag of Premium Plus and Eco-cement will go up from \$41.39 to \$46.36 and from \$38.85 to \$43.71, VAT-inclusive.

But cement price hikes are the most stable, according to people in the construction sector. Costs for roofing, for example, have almost tripled in some areas. Cost per square foot moved from \$18 to \$34. Purlin moved from \$80 to \$235.

Lumber has also gone up by about 60 per cent, owing to activity in the housing market in the US, from where TT imports a lot of its lumber. Steel has also sky-rocketed from anywhere between 50 and 200 per cent.

Freight has also had a negative effect on the sector, Mahabirsingh said. Availability of containers, or a lack thereof, has led to delays in the supply of materials. This, along with the cost of freight has also weighed down the sector.

"Pre-pandemic, the cost of moving a container was about US\$2,500. Now, it would have moved upward of US\$10,000-\$15,000," Mahabirsingh said.

The general state of the economy has also stalled the construction sector significantly. Deborah Costelloe, CEO of Lifetime Solutions Ltd, told Newsday there were very little significant projects to boost business on the horizon.

"There are very little commercial and large projects and there is a definite slowdown in government construction projects over the last three





Steel rods at the Phoenix Park Industrial Estate constuction site.

years leading into 2022, with the pattern continuing this year," Costelloe said. "This will have a damaging effect on the medium to large-sized contractors." Small contractors are also having their challenges. Indira Ramlochan, co-founder of

Prindi Contractors, a contracting company established in 2017, said the economic environment coming out of the pandemic is the most challenging it has ever

"Many people are on the breadline, having lost their jobs or stability," Ramlochan said. "Potential clients who would have been pre-qualified to purchase houses and land are now contemplating their next move and determining whether their purchasing power is still what it was.

"Most clients prefer to renovate what they have already rather than venturing into new construction projects. This is what we have noticed since the

beginning of the year."

Aside from the economic climate, the actual climate also presents challenges. Volatile weather patterns are also slowing down productivity as cement and rainy weather simply doesn't mix.

"In TT the higher productive months would be between early January to May. With the recent weather patterns that would have also affected the industry. You don't know when is rainy season and when is dry season. You will have a week with good weather then you would have two or three days where it is unpredictable in terms of the rain. The end of February was unpredictable.

Contractors are now turning to innovation in many areas to recover from the many issues coming out of the pandemic. In some areas, digitisation is playing an important part in making the process of building

Converge Technologies, established in 2013, has taken the lead in using digital solutions to streamline the construction industry. CEO Andre Edwards told Newsday that with covid19 accelerating digitisation in many areas, Converge Technologies saw it fit to introduce services to the construction industry.

"What we want to do is develop the service marketplace in the industry," Edwards said. "The intention is to connect service providers to customers. Service providers would benefit by having a ready market that they could go to, to find customers and customers would benefit by being able to find the right fit for their project and their finances."

"We are positioning ourselves as a marketing arm of the tradesmen and service providers and we try to provide clients for them."



CONSTRUCTION NEEDS A KICK-STAR

TECHNOLOGY from page 4

Edwards said there were many areas in the construction process done in-person before that could now be done remotely or virtually. These digital solutions could save contractors and customers time and money.

"Instead of someone going out and doing a site visit, people could send pictures and videos of the job so contractors could do a review," he said. "That way they would be in a better position to provide quotation for the services and they would not have to waste time and gas to go to a site."

Some companies, Edwards said, are using CAD drawings and electric rendering for plans, instead of having them drawn by hand. Some companies are even surveying roofs with the use of drones.

"Service providers are using technology to become more efficient and pass on those savings to customers," Edwards said.

Efficiency, Mahabirsingh said, is one of the key areas in which contractors are pivoting to reduce costs. He said contractors are reviewing their efficiency levels in terms of manpower, productivity and usage to redefine how they do their jobs and reduce wastage to its lowest possible levels.

Value engineering - the practise of balancing affordability of materials and quality - is also a key practice that is leading contractors to innovate and seek innovative methods and materials to get the job done.

"Before the pandemic people may have considered using porcelain tiles as a floor finish for some projects. That would have had to be imported from overseas. They may now consider using terrazzo flooring, which is cement and stone chips from local quarries."

"Clients and contractors are now collaborating on value engineering options whereby you achieve the desired finished product at a lower budget cost without affecting the quality and functionality."

"TT contractors are very economical builders naturally," Costelloe added. "I believe all contractors have cut their profit margins significantly to assist with increased costs to the customers."

She added that contractors are looking at materials such as light gauge metal framing, and foam concrete as well as methods such as net-zero construction to reduce energy costs to achieve their value engineering goals.

Light-gauge steel framing systems are structural frames that are fabricated using steel sections. They could be used in several parts of the

building including load-bearing and non-load-bearing walls, as well as roof trusses

Foam concrete, made from cement or fly ash, sand, water and foam is a lightweight material which reduces time and costs.

Preetab Ramlochan, also cofounder in Prindi Contractors, said innovation and management of projects is one of their best tools, and had been even before the pandemic.

"We are always on the look out for new tech and processes to make things faster and reduce costs," he

The company recently attended international builder shows in Orlando, Florida as well as other expos to learn the latest innovations and technologies in the sector.

"There are new innovations in automation, whether it is through electronic panels that could tell you how many watts each of your electrical outlets and your breakers are using. There is also a lot of automation in terms of security. There are Alexa alarms and door locks now that work through WiFi. There are also ring doorbells in which you use your phone to ring the doorbell and it can be answered anywhere in the world once you have WiFi or data. It works well for collecting packages or to see who is at your door, what time they were there and it could capture a couple seconds of images. These are actually cheaper than installing a regular doorbell nowadays."

"For roofing there are new roofs that come with solar panels built in so as soon as you install the roof that solar panel network is already connected."

But Preetab noted that not every innovation may stand the test of time. Innovations such as foam concrete is still new, and may vary in results as time goes on. He added that although these innovations can reduce costs, overarching issues such as freight still have extreme effects on the price of building.

Similar to the US and China, contractors said that more investment in construction is needed to kick-start the industry. Mahabirsingh said with economies reopening there would be a general normalisation of prices, especially with regard to freight, but the local economy would not see any kind of turnaround for another 13 to 18 months. He said the strategy being used by many countries is to invest in the construction sector to stimulate economic growth.

He also called for better availability of foreign exchange as this has proven to be challenging at times for contractors.

Indira said one way of assisting the sector in turnaround would be



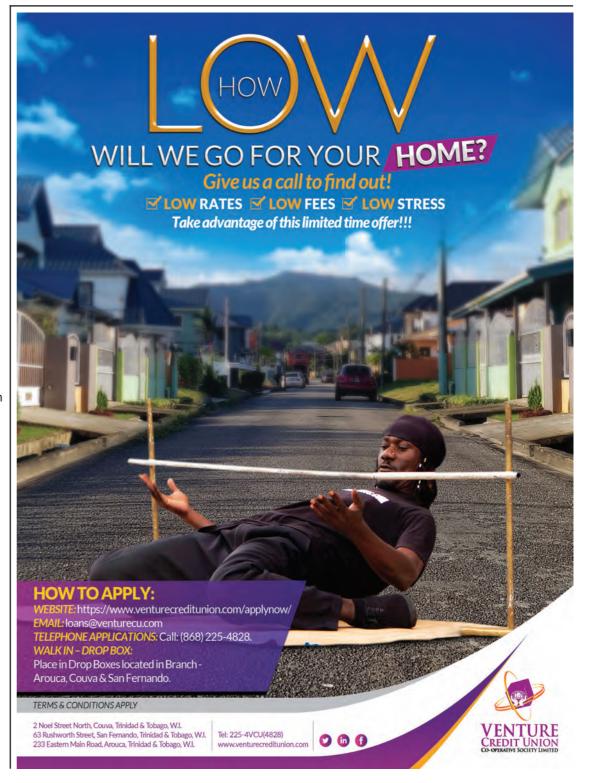
Construction at Phoenix Park Industrial Estate. PHOTO BY ANGELO MARCELLE

to simplify the approval process for building.

"This would make the processing time shorter." She said government has already digitised the process for planning approvals.

Another act to assist the sector in turnaround would be a removal of VAT and import duties, Preetab said.

"Guyana for example has become a tax-free development economy," he said. "People are allowed to bring in materials and that would assist with cost. All materials in Guyana are duty free right now. This has enormously helped Guyana and I believe it would help TT



KATHERINE ROTH,

Associated Press

new hosing trend seems to be emerging in the US as people try to find solutions to that country's persistent housing crunch.

In many parts of the country accessory dwelling units, or ADUs, also know as granny flats, in-law units or backyard bungalows are becoming popular.

These small homes — separate from the main house — tend to be low-impact and energy-efficient. Where legal, they can add housing to a neighbourhood while causing less disruption than constructing new apartment buildings, proponents say.

They're getting a new look in today's tight housing market; the last couple of years have seen a shortage of homes for sale, and many are selling for above listing price, according to economists and real estate brokers.

Sheri Koones, whose new book, Bigger than Tiny, Smaller than Average (Gibbs-Smith, March 2022), features several examples of ADUs, says they are part of a shift toward smaller, more affordable and energy-efficient homes.

High ceilings, abundant natural light, built-in furniture and open floor plans can make ADUs feel more liveable than their modest footprints might indicate, says Koones, who has written extensively about small homes and sustainable building.

"In our experience, a small space can truly be a generous living experience," agrees Scott Mooney, an architect in the Portland, Oregon, area who designed an ADU with his wife, Lauren Shumaker, a construction engineer.

They've been living in it for over four years, sharing the 624-square-foot space with their toddler and dog. They rent out the larger 1950s bungalow that had already existed on the 5,000-square-foot property.

"The key is maximising outdoor access, with lots of light, lots of views, pocket doors instead of swing doors and plenty of built-ins. It's a lot like what you see in RVs or custom vans," Mooney says

An ADU could be created by converting a detached garage or building an apartment above an attached garage. It could be part of a basement, with a separate entrance. Or it could be a new structure if the property is large enough; there are



An example of an accessory dwelling unit, a small home separate from a main house which proponents say are a low-impact, energy-efficient way to create more living spa

IESIGN TRENDS FOR ADD NG SPACES TO HO

buy.
While, for the most part, these units cannot be sold separately from a home, they can be places for elderly parents or adult children to live or can be used as home offices or guest homes. In some areas, they can be rented out or, as with the Mooneys, provide housing for the homeowners, who then rent out the main house.

According to Peterson — who built his own ADU and has been living in it for more than a decade — the units help mitigate housing shortages. They provide homeowners with a way to make a little rent money in neighbourhoods that have grown expensive, he says, and offer renters

traditional houses.

"They add density without adding large new housing structures," says Koones.

Vancouver, Canada, is another city in which ADUs are popular.

"The cost of housing is skyrocketing here. My parents had built a new house and weren't allowed to build a lane house (ADU). Then the rules changed, and my parents are ageing, and we thought, 'Let's go for it," says Tanya Dang, who lives with her partner in a 650-square-foot remodelled garage.

"We moved in July 2020, and before that we were living with my parents. So when we moved in, we thought, 'Oh my goodness, we have all this space

High ceilings and an ample patio help make the space feel larger, she says. The home, designed by Lanefab Design/Build, has enough storage space for the couple's outdoor gear plus things her parents had kept in the garage.

"We have a pullout couch and a half bathroom downstairs, so we can even have guests. There's a fold-out leaf at the kitchen island that allows us to seat six people for dinner," she says. "People are always surprised at how big it feels."





This image provided by Bigger Than Tiny, Smaller Than Average, is an example of an Accessory Dwelling Unit, a small home separate from a main house. AP PHOTOS



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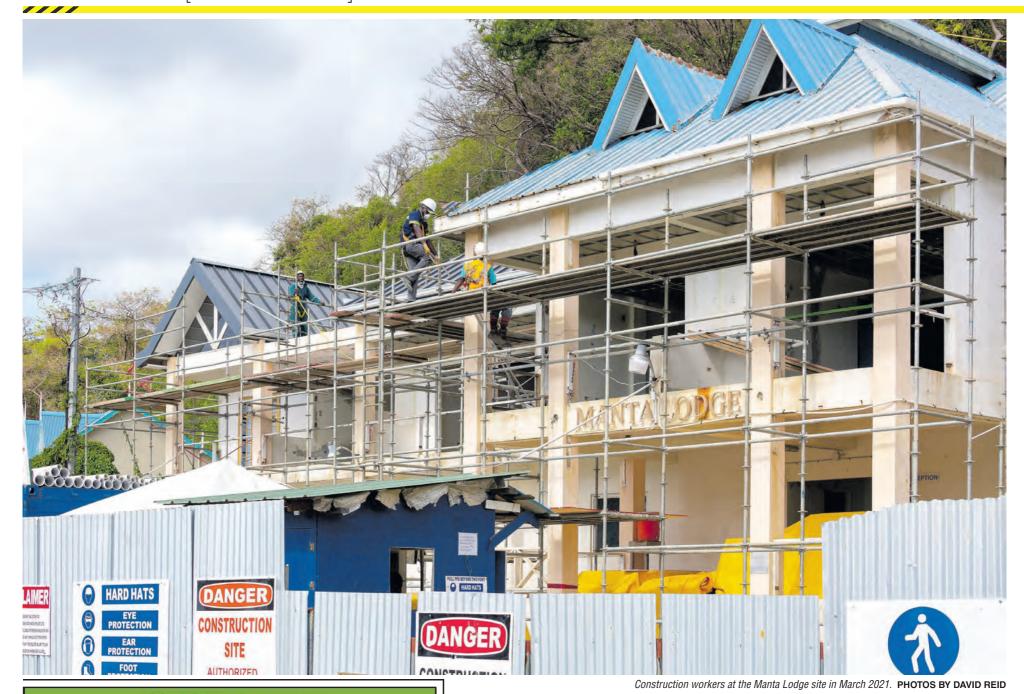
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COREY CONNELLY

ith a general decrease in covid19 infections and the possibility of a full reopening of the country's economy in the near future, Tobago contractors are optimistic that the island's sector will be revived.

The contractors, who did not want to be named, said they are eager to return to work after having experienced severe hardship during the country's two-year battle with the pandemic.

"Hearing the Prime Minister said that he intends to meet with health officials to see how best the economy can be fully reopened was like music to my ears," a veteran contractor told Newsday.

"Things have not been easy. The sector really suffered during covid (19) but I believe the prime minister's statement is a good sign that things can happen before long."

Another contractor shared similar sentiments.

"When the Tobago economy picks up, the sector will once again begin to flourish and the society as a whole will benefit. So, we are hopeful."

The contractors say they are willing to work with the Progressive Democratic Patriotsled Tobago House of Assembly (THA), which, in the run up to the December 6, 2021, election, had laid out an ambitious developmental agenda for the island.

One of its signature initiatives is the proposed multi-million dollar Scarborough revitalisation project, which is expected to change the face of the capital city. The project is being led by the Division of Infrastructure, Quarries and Urban Development.

Last month, the THA held three stakeholder consultations on the project to gauge feedback.

At the end of the consultation on March 9, Chief Secretary Farley Augustine said the initiative will be undertaken in phases but the THA intends to consider projects that could be done immediately to uplift the aesthetics of Scarborough.

He said a redeveloped Scarborough must be efficient, conducive to business and promote economic growth and social inclusion.

In the run up to the THA election, the PDP had also planned to give each of the 15 electoral districts \$10 million on a yearly basis to construct daycares, homework centres and other initiatives.

Projects currently on stream from the previous PNM-led THA include Comfort Inn & Suites, Bacolet Indoor Sporting Facility, Goodwood Sporting Pavilion and renovation at Manta Lodge in Speyside.

One of Tobago's much-touted mega projects is the proposed \$500 million Marriot-brand hotel at Rocky Point, scheduled to start in 2023.

One contractor said owing to the fact that these major projects are already on stream, things are looking bright.

He said contractors want to return to work.

"Because for now, the construction industry in Tobago is "very, very slow," both in the private and government sectors.

"I would not say that it is dead or even dire but it is very, very slow," he told Newsday.

"I have always said the number of trucks on the road is a sign of the activity taking place in the construction sector. But you are not seeing very much of that now."

The contractor could not say to what extent increases in cement prices and the overall cost of



Workmen at the Buccoo Bay boardwalk site.

construction materials would affect contractors.

"The Tobago House of Assembly has to depend on central government for releases to run their business. But how is it going to come is another issue. The government have been saying that they have no money but there is a lot of work to be done.

"We are hoping that something should and will pick up soon. But there is nothing really happening with the industry."

The contractor attributed the situation to covid19 and the fact that the government owes contractors significant sums of money for work that has already been completed.

"Payment is a major issue."

He alluded to the recent closure of the debt-ridden Education Facilities Co Ltd, which reportedly owes contractors over \$600 million.

The contractor said the new THA, in office for only four months, may have to get "a little time to find their feet" in order to complete old projects and begin new ones.

"But basically, nothing is happening.

He predicted the problems confronting the industry will be exacerbated by the escalating cost of construction material and shipping around the world.

"And this war between Russia and the Ukraine is not helping anything."

He believes people will hold off on spending money on construction.

'They will prefer to hold on and see what is going on within the next few months to a year before anything happens."



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Build to Last executive director Terrence Kalloo operates a corrugated sheet roll machine. PHOTO BY LINCOLN HOLDER

RIA CHAITRAM

ompanies have had to adjust their business models to stay afloat during the covid19 pandemic, and even postpandemic, but with the now potential economic fallout from the Ukraine-Russian war, one Central businessman is calling for more access to foreign exchange.

Build To Last Hardware and Roof Manufacturing Ltd executive director Terrence Kalloo said prior to the pandemic, business owners were having problems accessing foreign exchange at the banks and this became worse over the last two years.

In an interview at his office at Southern Main Road, St Mary's Junction, Freeport, Kalloo, 60, said, "A major problem in our country is that there are no US dollars available.

"The banks are unwilling to lend because they are also looking at their risks. Since March 2020, the banks have not come forward to lend any assistance to businesses."

Kalloo explained that for his business to be sustained and remain operable almost US\$250,000 or about TT\$2 million in aluminium coils for roofing must be imported every month.

Its roofing centre, also located in Freeport, manufactures a wide variety of roofing profiles, purlin, sheeting and decking, while the hardware supplies construction materials at both retail and commercial levels.

Kalloo said the price for a roll of coil has doubled over the years moving from US\$900 per tonne to US\$1,800 tonne, and coupled with the difficulties of getting foreign exchange from the local banks, day-to-day operations were hard,

BUILD TO LAST CHANGES WAY BUSINESS IS DONE



Build to Last general manager Shivonne Kalloo-Rickhi highlights the burl furniture available at the home store.

and debts kept stacking up.

Further disruptions and increased costs in shipping and freight were likely to come soon, said Kalloo, who has been in the construction business for over 17 years, and owner of Build To Last for the past 11 years.

"Ultimately, the cost of construction has risen considerably. The cost of a per square foot for roofing has moved from TT\$18 to TT\$34 and purlin has moved from TT\$80 to TT\$235. It is that bad.

"During the pandemic last year,

we were able to produce the same quantity as before the pandemic, but our margins have fallen because of the increased prices of the coils. We survived by the grace of God, and we continue to absorb our losses and continue to borrow. We are in debt," he said.

Among the adjustments to his core business model of providing hardware and roofing supplies, general manager Shivonne Kalloo-Rickhi said they have expanded into retail appliance sales, furniture and a home store.

She said they have had to promote their presence more rigidly on the business's social media platforms such as Facebook, Instagram and website.

"We are not focusing only on hardware items, we started focusing on major and mini appliances. We also started a new project in burl and giving local artisans a place to house their pieces," Kalloo-Rickhi said.

Burl furniture is created from wood formed from unsprouted bud tissue which are large, knobbylooking growths on the base and trunk of a tree. It then goes through various processes to make it into furniture for everyday use.

Kalloo-Rickhi said, "We hope to be in the only company in the country that supplies these 'live edge' furniture and we have been working with some locals on this project.

"We allow them to showcase their pieces such as coffee tables, dining tables and benches. It is a very natural look."

She added that the home store component and conversion of the space was done in-house and materials the company had in stock, so it did not come at an additional cost.

"We are trying to make Build To Last more of a one-stop-shop where you can still get all the hardware supplies and added extra, that appeals to women.

"The look is now totally different. We have throws, blankets, baskets, kitchen accessories, décor and so on."

"We are always looking for something new and we will continue to expand on the burl project, the home store and appliances."

Construction has been identified as critical to jump starting the economy but with the struggle to get foreign exchange and the difficulty in doing businesses, Kalloo said he was seeking investments in Guvana.

The upcoming Guyana Trade Mission scheduled to take place between March 28-31 will included the TT Manufacturers' Association.

"I plan to go to Guyana and open a hardware business there and construction. I want to focus more on the supply of big beams and steel."

Kalloo said he does not have plans to set up a manufacturing complex in Guyana but rather preferred to export to them.

Additionally, he said his interest in construction would be attaining contracts for the country's infrastructure construction drive.

"I'm looking at getting contracts for industrial and commercial ventures such as hospitals, schools, malls and so on rather than in housing developments.

"I don't know if Guyana has sufficient expertise in construction, given the amount of expansion they've been planning but I am willing to get involved.

"Hopefully our bids are successful and can manufacture and fabricate the materials here and take it there to be sold through our hardware," he said.

Kalloo said the construction industry was very competitive and finding new markets and modifications to one's business model from time to time was helpful.

He added, however, that investing in the core function of any business was critical, as it was survival of the fittest in the business world.



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An employee carries cement at Ramlagan's General Hardware, Couva



A forklift driver stacks red blocks at Ramlagan's General Hardware. PHOTO BY MARVIN HAMILTON

HARDWARE OWNERS WANT INDUSTRY REGULARISED

RIA CHAITRAM

ITH the cost of construction material increasing between 20 and 25 per cent over the last few years, some small hardware stores are finding it difficult to meet sales targets, thus negatively affecting their operations.

Newsday spoke with two businesses in Central Trinidad to get an idea of how they have been coping with the increases and their plans for growth after the Prime Minister hinted at a full reopening of the economy.

Ramlagan's General Hardware in Couva has been in business over 30 years and Boss Buildap TT in Longdenville for a little more than a year. Both owners agreed the challenges the industry faced were a lack of regulation and access to foreign exchange.

Krishna Ramlagan explained that the price increases in construction material had been happening before the pandemic, but the pandemic also added pressure to shipping, freight and manufacturing costs.

Among items affected within the last two years were steel, lumber, aluminium coil, cement, I beams, purlin, decking and blocks.

Someone seeking to undertake a do-it-yourself project or any home renovations, they would have to pay about 63 for a length of steel, \$51 for a bag of cement,



Lisa Mohammed-Hall and Leslie Hall show a range of items available at LH Hardware in Longdenville. PHOTOS BY LINCOLN HOLDER

for a palette of clay bricks \$1,795, and a palette of concrete BRICKS, \$1,105. These are average prices and may vary based on the hardware store and its conditions.

Ramlagan said, "There is a decline in construction generally. Construction is going on, but it is not booming. Pricing continues to climb, and the Ukraine-Russia war will have an impact on our supplies.

"Suppliers are adjusting prices weekly by ten and 15 per cent as new shipments are coming in."

Ramlagan added the market was difficult because it was not feasible for small hardware stores to import materials directly because of the quantity, lack of access to foreign exchange and taxes.

"This has led some of our suppliers to take advantage of us. Presently there is no price control for building materials. Businessmen see and seize an opportunity and they are taking advantage of it.

"Consumer Affairs Division is doing nothing about it because there is no control of the markup of prices. Right now, we have one manufacturer and supplier of cement and clay blocks which we are forced to purchase from."

Boss Buildap TT Ltd co-owner Lisa Mohammed-Hall said her customers have decreased compared to the lockdown. She said as the economy reopens and people came back out to work, coupled with challenges in personal income, business sales have decreased within the last three months.

"The inflow of customers has been really, really slow. During the pandemic people were at home and they were doing stuff on their homes, so I was still seeing a little flow in the business.

"Also, because the country is semi-open, people are back out to work – they just don't have the time for home projects. People's cash flow is also not as it was

Krishna Ramlagan, owner of Ramlagan's General Hardware.

previously, and whatever monies they had has depleted."

Mohammed-Hall forecast more increases in construction materials because of the negative implications of the Ukraine-Russia war.

Both owners said the industry has been difficult to navigate in the last two years and believes that if it was regularised, prices would be favourable for the hardware stores and customers.

Ramlagan pointed out that there once was a hardware association which lobbied for ease of doing business in the sector but since it was dismantled, owners had to fight for themselves. He said if this was established again, there would be a voice for the small hardware store owners to help them to compete in the market.

"It is a very challenging industry. If that happens it will make a difference.

"But I don't see it happening, because the bigger hardware stores and suppliers control the market and the smaller ones would always be the victim," Ramlagan said.

Mohammed-Hall said, "It would give us some leverage in the market. To have a united voice might influence some changes in the way the sector is run, such as our tax structure and competition. There is no price stability or structure."



ontributing 13 per cent of global GDP and an estimated US\$12.9 trillion market by 2022, construction is the largest industry in the world, yet the least automated and is positioned to benefit from significant value through productivity improvements. The World Economic Forum estimates within 10 years, fullscale digitisation could lead to savings between US\$700 billion to US\$1.2 trillion (13-21 per cent) in design, engineering and

Construction organisations need capabilities to analyse historical data, forecast what might happen in the future to avoid operational issues before they occur, reduce waste and downtime, improve safety and reduce risk and liability. Logistics and on-site materials can be managed using digital tools to reduce waste and optimise for just-in-time delivery, increasing productivity on the construction site.

construction efforts.

According to McKinsey and Company: "GDP growth will require an estimated US\$57 trillion in infrastructure investment between now and 2030. Practical steps can reduce infrastructure spending by 40 per cent - an annual saving of US\$1trillion - by boosting productivity."

Improving efficiencies in construction results in better project delivery and more construction, especially when costs go down. In addition, population growth feeds new construction in the built environment.

Projects are large and complex; the construction industry is under pressure to increase productivity, reduce risk and liabilities, and to deliver better project outcomes.

Digital Construction Works (DCW) is a digital acceleration services company that provides digital automation,

DIGITAL CONSTRUCTION **WORKS:**

Making transformation easier

integration, twinning services and fit-for-purpose solutions to automate and optimise the construction process from planning through to operations.

Ted Lamboo, CEO of Digital Construction Works, said: "The construction industry sees that digitising their workflows will increase efficiency and avoid risk and overruns. Leveraging digital twins and improved workflows will accelerate this process, and DCW can support the marketplace to make this transition. Our broad spread of digital solutions and services will support our users in this process."

DCW solutions span every phase of the project - from planning to construction and operations through to asset management - creating a digital thread that connects technologies and workflows. The company also provides automation services to digitise workflows rapidly and leverages cutting-edge technology in an innovation environment, proofed, verified then implemented on construction projects.

Some examples of these services

* Digital twinning: View a representation of an asset at any point in time.

* Advanced work packaging: A single source for total project integration.

* Construction modelling (4D/5D): Control cost and reduce waste through optimised

Continuous surveying: Reality capture and reality modelling to update and maintain digital context.

* Visualisation and analysis: Project dashboards to enhance decision-making with user-friendly tools. Harry Parnell, head

of digital project

delivery for Balfour Beatty, said: "We see the benefits of working with organisations such as DCW, whose position in the market as the only end-to-end construction solutions service provider brings us confidence in how our core business targets will be kept a priority throughout the entire project.

"Their ability to be agnostic to technology is also important. We know that a combination of technology and process improvement will provide us with the best digital solution and make sure that technology follows the operational process change efforts, but never leads it. The use of technology in silos throughout our organisation will never bring real operational or industry change, but the use of technology with digital twin workflows and key operations processes in a focused and strategic effort will enable Balfour Beatty to reduce the gap between the office and the site continually."

Digital Construction **Works labs**

To ensure DCW stays at the forefront of innovation, a large part of what it does happens in its labs, where it invests heavily into research and development (R&D) to identify and validate integrated workflows using open source solutions.

Jason Hallett, COO of DCW said: "We believe that open collaboration and a commitment to improving the industry are the primary requirements for stepfunction advancement in digital construction. No single tool company can, or should, own the entire construction process as that journey only leads to a lack of innovation.

"DCW is starting with the backing of two large product companies, and we will welcome technology partnerships and service providers that can contribute to delivering a complete portfolio of digital solutions that are capable of moving the industry toward a more efficient and automated future."

The Digital Twin Lab develops and proves solutions and workflows that drive an efficient flow of data from the field to the office and the office to the field. Its open innovation with clients and close connections to other technology leaders allows DCW to push the boundaries of digital integration and construction automation.

The Solutions Integrations Lab delivers new data points and efficiencies not available today through key product integrations. Their development team will deliver repeatable integrations between the various toolsets used on the job today. The lab aims to produce increased project transparency and improved decision-making via deep and actionable analysis of data that reside in every project.

DCW makes data, digital workflows and best practices visible, enabling the project team to be accountable, project operations efficient and business profitable. DCW's unique approach is leveraging its expertise and the research and development done do in its labs. These solutions provide unique and actionable insights into data, dashboards and analytics that are only now

The above is an edited profile of the US-based company, Digital Construction Works. The full article can be found at pbctoday.co.u.



The Architecture Profession Act No.19 of 1992 is an Act that governs the profession of architecture in Trinidad and Tobago. In order to protect the public interest, the Act establishes the Board of Architecture of Trinidad and Tobago (BoATT), which assesses the qualifications and experience of any person applying to become a Registered Architect, a title protected under the Act.

Prohibitions

Section 16 of The Architecture Profession Act, 1992

- 16. A person who is not a Registered Architect shall not -
- (a) use any title or description that leads to the belief that he is a Registered Architect;
- (b) advertise himself as a Registered Architect;
- (c) act in a manner so as to create or induce the belief that he is a Registered Architect; or
- (d) sign or stamp any plans, drawings, designs, or specifications, purporting to be acting in the capacity of such Registered Architect.

REGISTEREDARCHITECTS — 2022 In accordance with the Architecture Profession Act, 1992, Section 10 Sub Section (2)(d) and Section 24

NO.	NAME	102	2-1-1-1-1	222	2	322	
111	10-12-13-13	070	Damian Nunez	101	Roger Mohammed	129	Rygelle Dowding
006	Mark Franco	072	Dion Wilson	102	Nigel Thomas	130	Robert Thompson
007	Michael Bynoe	075	Gary Turton	103	Chadrick Lim Sang	131	Simone Ashby
009	Terence Wiltshire	077	Akindele Looby	105	Alison Grosberg	132	Helena Van Lare
013	Lloyd de Suze	078	Darren Brathwaite	106	Sharen Bidaisee	134	Liselle Coker
015	Raul Poon Kong	079	Gregory Salandy	108	Paul Moses	135	Renate Allum
017	Bernard Mackay	082	John Ferraz	109	Khalid Carmichael	136	Akila Henry
026	Jaspal Bhogal	084	Monique Muiznieks	111	Peter Chandler	137	Garfield Seaton
032	Cheryl Alleyne Adams	085	Johann Lambkin	112	Colin Manwaring	139	Ronald Ammon
033	Shirla Murray	086	Rawle Mitchell	113	Jason Leigh Scarlett	140	Nikisha Powder
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036	Joseph Orme Yearwood	088	Robert Blache-Fraser	115	Gerren Clarke	142	Raymond Dickson
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059	Arthur K. Bowles	097	Timothy Newton	123	Stephen Jameson	149	Adam Schiller
060	Gerard De Four	098	Korry Barnett	126	Camille D. Lewis	150	Adriana Camacho
061	Colin Basso	099	Marlon Charles	127	Elias El Hajaly		
066	Thomas Mc Cartney	100	Martyn Joab	128	Rayudesh Katwaroo		

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Gary Turton (Chairman) Dion Wilson (Registrar) Jaspal Bhogal Colvin Chen Sean Spencer Keith Thomas Tracey Rojas

The Register of architects was last updated on 7 February 2022. If your name is not listed, please contact the Board.

19 Stanmore Ave., Port of Spain, Trinidad, W.I. boatt92@gmail.com

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The Chairman and members of the Board of Architecture of Trinidad and Tobago are pleased to publicly affirm our appreciation of the following registered architects for the singular milestone of accomplishing 50 years as a professional.

The Board joins with the community of architects, clients, and consultants, as well as the wider society, in expressing our gratitude for their long-standing contributions to the profession and practice of architecture in Trinidad and Tobago, often in difficult circumstances.

We continue to look forward to their guidance by word and example and encourage all of those striving behind them to reach for, if not to exceed, their mark.

Thank You



- 002 Joy Lyons
- **Louis Ottley** 004
- Terence Wiltshire 009
- 011 Colvin Chen
- Lloyd De Suze 013
- John Gillespie 014
- **Bernard Mackay** 017
- **Brian Lewis** 018
- 019 Barry Franceschi
- 023 Honor St. Rose Louis
- **Geoffrey Herrera** 024
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