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TRINIDAD & TOBAGO

QUARTERLY E-MAGAZINE APRIL-JUNE 2023

ISSUE NO. 4

**CMOH Subdivision Applications:
It's Negative Impact on
Construction Development**

**How effective are our
Reinforcements?
What you need to know
about Steel Rebars**

**Renting vs Buying
Construction Equipment
What's the Right
Choice for Your project?**

**Best Water/Wastewater
Management Practices for
Construction Sites**

**How Management Systems
help the Changing face of
Business and Quality**



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President's Message



Glenn Mahabirsingh
TTCA President

The government's infrastructure improvement initiatives, such as road repairs, have led to job opportunities in the construction industry and positive outcomes for suppliers of construction materials.

The 2023 national budget includes a significant amount of construction-related initiatives and projects aimed at maintaining the sustainability of the current level of construction activity. These projects encompass major infrastructure works such as roads, bridges, and landslip works, as well as housing and building projects. Based on the identified budgets and anticipated project mix, it is expected that all industry players will be engaged. Quarter three and four are expected to be particularly active due to the types and mixture of construction projects the industry is expecting.

The identified infrastructure projects for execution in 2023 include roads, drainage, and landslip work, indicating a potential demand for related services in the industry.

TTCA has provided training for personnel in the construction sector on topics such as Concrete Fundamentals, Steel Fabrication, Roofing, Risk Management, Statutory Approvals, and Construction Contracts. The Association has utilized both inhouse and contracted presenters who are experienced professionals in the industry. TTCA is dedicated to promoting skill development, integrity, and responsibility in Trinidad and Tobago's construction sector. As part of this mission, the organization is pursuing a permanent facility to host workshops and training programs focused on construction.

With regard to procurement, TTCA hopes that the implementation of procurement legislation will be accomplished by the conclusion of fiscal year 2023.

CMOH Subdivision Applications

It's negative impact on construction development

TTCA Advocacy Committee

TTCA has brought to the attention of the Ministry of Planning and Development a significant impediment to the development of lands in various jurisdictions throughout the country.

Once a subdivision's layout is approved by the Town and Country Planning Division (T&CPD), it is subsequently forwarded to the Local Health Authority (LHA). However, in recent years, the LHA has begun to send these plans to the County Medical Office of Health (CMOH).

Numerous contractors have ceased construction due to the challenges presented by the CMOH Department. In the 1970s, Health Department approval was required for subdivision surveys. However, this practice ceased around 1978 because of in-house Public Health Inspectors at the Regional Corporations. Recently, the CEO of the Chaguanas Borough Corporation directed that subdivision applications be sent back to the CMOH for approval due to internal process defects in his Department. We believe that this step was regressive.

Prior to the online Town and Country Planning Division platform, the Diego Martin Regional Corporation, San Juan/Laventille Regional Corporation, Tunapuna/Piarco Regional Corporation and Sangre Grande Regional Corporation never sent subdivision plans to CMOH for approval. If it is the Law, then why these four (4) Regional Corporations did not send subdivision plans to CMOH? With the online platform, the Sangre Grande Regional Corporation still does not send plans for approval at CMOH.

According to our understanding, the law does not state that you need approval from the Public Health Division. The Law states that subdivision surveys must meet certain Public Health requirements.

In many cases, Health Officers are acting beyond their scope. A typical example, when the T&CPD approves on building lots under 5,000 square feet, but the Public Health Act of 1917 (over 100 years) stipulates that the minimum lot size is 5,000 square feet. This is a contradiction, especially where in almost every single HDC Development, the lot sizes are less than 5,000 square feet. Another scenario is when Public Health Officers require the developer to survey the lands first before they can consider their application. Unfortunately, they fail to realise, the opposite is true. It is a pre-requisite for the Director of Surveys to see proof of final LHA approval before the approval of RPO plans. However, in many instances, after plans go to the Local Health Authority (LHA), Drainage Department may require additional drains, so how could you possibly survey the lands when nothing is final. Most applicants would tell you that many times CMOH cannot even find the site, even though other agencies, T&CPD and LHA have already located the site.

A few years ago, we were informed by the Building Inspector of the Couva/Tabaquite/Talparo Regional Corporation, that close to 200 applications from subdivisions of house plans were deferred by the CMOH. This is not by any means a few applications, it's over 200. Something must be radically wrong in the development process when that many applications are being deferred.

Some years ago, advice was sort from Mr. Douglas Mendez, Attorney at Law in the interpretation of the law, at that time he advised that you must have input from the Ministry of Health for certain public health requirements. In our opinion if a Building Inspector cannot determine in a small development (less than 10 lots) whether a drain can handle outflow, he should not be a Building Inspector. In large developments you must have Drainage Division, TTEC, Fire and WASA approvals, these approvals do not matter in large developments.

We ask, why must applications be sent to duplicate this process by sending the plans to CMOH? All that is required from Public Health is drainage direction, outfall and road construction, which is also required from the Local Health Authority.

The crucial inquiry to pose is: "What significance does the submission of an application to CMOH bestow upon the process in light of the presence of Building Inspectors, Engineers, and Public Health Inspectors in-house at numerous Regional Corporations?"

This issue leads to avoidable delays in the approval procedure, which can span over a period of years in some instances. We were recently informed regarding a common example, wherein T&CPD approval was sought for a single residential lot and five agricultural plots under a single application. The process at CMOH lasted for two years, as they requested the surveyor to re-do the application to reflect solely the residential land. This arises from their lack of familiarity with managing an application combining different land uses under a single form. Additionally, it is imperative to note that Town and Country does not provide approval for a parcel of land that has already been sanctioned. It is also pertinent to note that there is no established method for “provisional approval” at CMOH, contrary to that of the Regional Corporations.

Due to the prevailing delays, numerous individuals are opting to construct buildings and develop properties in a non-regulated fashion, thus causing a serious obstacle to the progress of the nation. Furthermore, failure to adhere to the authorized development process results in an avoidable financial loss for the State, as final approvals are unobtained from the Regional Corporations.

Regarding the responsibilities of the CMOH, it is recommended that their input be limited to matters pertaining to food establishments or funeral homes, as well as situations impacting public health. For smaller developments, it is deemed appropriate for Building Inspectors to take charge. Although CMOH Officers are mandated to visit schools, it has come to our attention that they only visit once per term or, in certain instances, even less frequently due to a shortage of officers. With the Regional Corporations equipped to handle subdivision surveys, it seems unnecessary to burden the CMOH with such applications.

During our conversation with the Acting Director of Town and Country Planning Division, Mr. Kerry Pariag, he conveyed his knowledge of the numerous Subdivision applications that are currently delayed at CMOH. He explained that due to the design of the online portal, these applications must be routed to CMOH and there are no further actions he can take at this time.

It is our professional opinion that a Cabinet Note from T&CPD has the potential to effectively amend the planning process, resulting in the cessation of plans submitted to CMOH. While it is notable that not all Regional Corporations submit plans to CMOH, the anticipated removal of CMOH from the developmental process in the new Planning Act years ago remains an unrealized and urgent hope for contractors. This process, in our opinion, is a needless repetition of the planning process that causes unjustified delays, sometimes spanning years, without accruing any value to the development plan.

Throughout the course of the Covid-19 pandemic, frequent revisions to the Public Health Act were implemented. It is plausible that the exclusion of CMOH from the planning process could be an uncomplicated solution to this matter.

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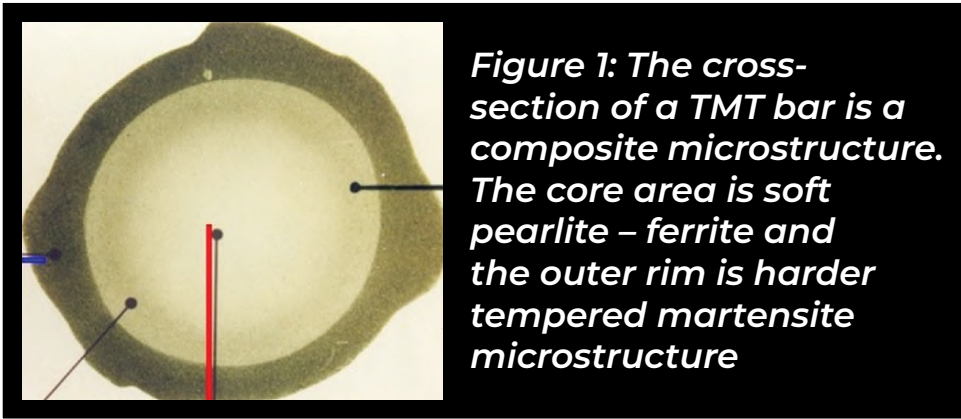
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How effective are our reinforcements?

by Marco Nunes
CARIRI

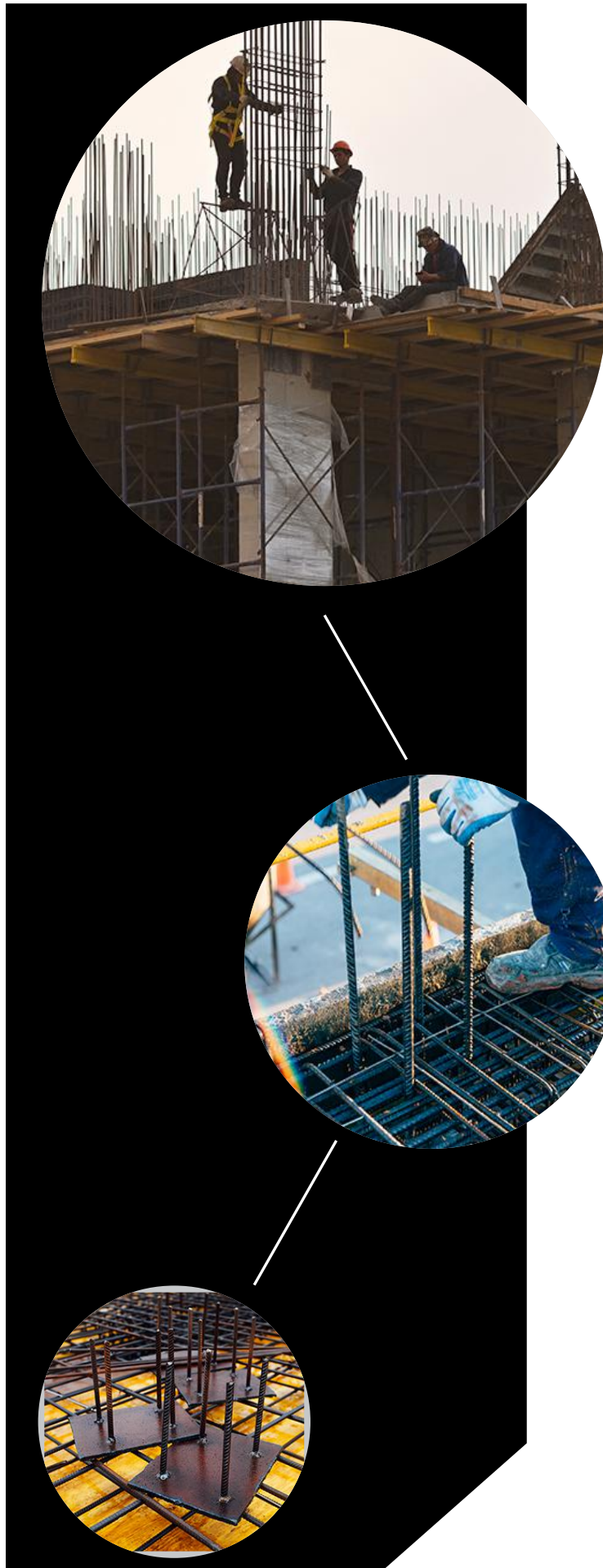
What you need to know about steel rebars

Amongst the vast numbers of man-made/invented composites, the reinforced concrete comprising cement, water, sand, gravel and steel, perhaps is a composite material that had maximum impact in revolutionizing the quality of life of human being. After curing, the concrete attains appreciably high strength in compression but remains very poor in tension, flexure, shear and torsion. It was an accidental discovery when a French gardener named Joseph Monier in 1867 observed that a phenomenal improvement in durability and strength of his flowerpots after iron nails were embedded in castings made of Portland cement, sand and water. This discovery led to a series of developments in designing of rebars to achieve stronger and longer lasting concrete structures. It was a long journey for the currently popular TMT (thermo-mechanically treated) steel rebars to reach to its optimum properties, imparting improved life to concrete structures. Now TMT rebars are used all over the world for erection of bridges, flyovers, high and low-rise buildings, pavements, concrete roads, canals, dams etc. These rebars are produced by quenching and tempering the process results in the rebar having a composite microstructure with ductile core area and harder outer rim. This dual structure imparts strength as well as ductility to TMT rebars. They are free from any distortion of crystals of steels and therefore are more resistant to corrosion with desired ratio of tensile and yield strengths. The absolute carbon content is also kept at the lower side in such types of rebars which improves their weldability.



Unfortunately the production process of TMT type of rebars needs special mills with very strict control of quenching and tempering parameters. This increases their cost of production. Many companies still produce rebars without quenching and tempering treatments and market them in many countries. It is not possible to differentiate between TMT and non-TMT bars just by looking with the naked eye. The users, unaware about the quality of such rebars use them in their construction work. As shown in Figure 2, both TMT and normal bars (non-TMT) have ribs and it is not possible for consumers to differentiate between them. It can be differentiated only after looking into the rim formed on the cross-section of rebars. TMT bars develop a circular rim around the cross section but non TMTs do not exhibit such a rim.





How to find out whether the rebars are TMT or non-TMT

It is very simple. Cut a small piece of the bar. Grind its cross-sectional area on emery paper to remove scratches.

Dip the cross-section in an acidified solution of alcohol for 30 seconds (98% alcohol + 2% nitric acid).

Remove the bar from the solution and let it dry. If a circular ring appears along the periphery of its cross-section, it is a TMT bar. The photograph of cross-section of a TMT bar after testing is shown in Figure 1.

Role of good quality rebars in improving the durability of civil constructions and their endurance to natural disasters

ASTM A615/A615M: *Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement* has no provisions to

control higher values of yield strength (YS), minimum tensile to yield strength ratio and upper limit of tensile strength (TS). These properties of rebars are of utmost importance and that is why American Concrete Institute (ACI) codes, ASTM A706/A706M: *Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement* and most other international codes related to reinforced concrete design for earthquake / hurricane-prone zones specify a minimum and maximum YS and TS and a minimum value for TS/YS ratio for rebars which should be > 1.25 . At first sight, these stringent control of strength parameters seem very perplexing. Why should there be a cap on strengths? Is stronger material bad for building structures? To answer these questions, we have to understand the role of rebars in concrete structures.

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Most of the Caribbean region is prone to seismic and hurricane activities, and their occurrence of high to moderate intensities are very common. The energies generated by these natural calamities are transferred to the structures on the earth. The maximum effect of these energies is on civil structures. If not properly dissipated through a man-made system, these structures may have catastrophic collapse (buildings and other structures) causing tremendous loss of human lives and property. Concrete structures possess very high strengths in compression but practically have zero endurance to tensile stresses. Natural disasters such as earthquakes and hurricanes cause tensile stresses on structures where a simple concrete with cement, sand and gravel fails miserably. Steel reinforcement bars have good tensile as well as compressive strengths. This material, when embedded in concrete, substantially imparts tensile properties, namely yield strength, tensile strength and ductility to the erected structures. The yield strength of rebars, which is defined as the maximum force per unit area before they start yielding due to the tensile force, is very important and useful in absorption and dissipation of forces caused by natural disasters. A major chunk of these forces transferred to the concrete structures is absorbed by steel rebars during its yielding. However, the yielding force needed to yield rebars should not be too high than the designed strength. The excess YS of rebars will prevent its yielding during the events of natural calamities and forces will be transferred to concrete causing their fragmentation into big chunks and falling off. The tensile strength of rebars which is the maximum required force before it completely breaks into pieces, is another very crucial and important parameter that safeguards the concrete structures in event of very high intensity forces.



Author
Marco Nunes

**Caribbean Industrial
Research Institute
(CARIRI)**

Mr. Marco Nunes holds the position of Metallurgist and Metallurgy Laboratory Programme Leader at CARIRI. He possesses industrial experience in steel manufacturing and processing. Previously, he worked as a Production Supervisor in a steel company, overseeing the manufacturing of steel long products from raw material to final product. He has ample experience in testing steel products meant for the construction, utilities, and transport sectors.



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A higher TS of rebars with their longer elongation properties is a good mate for concrete. In view of these facts, ACI, ASTM and other standards prescribe a minimum TS/YS ratio of 1.25. If proper rebars are embedded in concrete structures, the losses due to natural disasters can be minimized to a significant extent. Now most of the countries especially in Europe, Asia and North America are following building codes for design incorporating the rebars to withstand / minimize the impact of natural disasters.



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Renting vs Buying Construction Equipment

What's the Right Choice for Your project?

Prior to making a decision on purchasing or leasing new construction equipment, a thorough evaluation of relevant factors and their monetary impact is crucial. It is important to consider various criteria when making such a decision.

For any large construction job, consideration must be given to the available equipment. Purchasing the equipment outright may not always be necessary. For larger companies with the resources to store, maintain, and transport equipment to and from job sites, buying may be the more suitable choice. Conversely, for smaller, developing companies, renting is often preferred as it enables cash to be allocated directly towards aiding growth.

It is important to consider all aspects of the bottom line when determining whether to purchase new construction equipment or to opt for rental. This article will provide an analysis of the rental and purchasing options for construction equipment to aid in decision-making for companies.

Assess your desired construction equipment needs: In the construction industry, if a piece of equipment is used more than 60-70% of the time, it may be more cost effective to purchase or lease the item rather than rent. When making this decision, it is important to think ahead and factor in future needs as well. If the cost of rental equals or surpasses the cost of ownership, it is likely time to buy.



One factor in favor of the purchase option is whether cost consequences would arise if the right equipment was not immediately available. The versatility of the equipment should also be taken into consideration; if it is utilized on multiple types of jobs, then it might be a better choice to purchase it. If the value of renting equipment for a project is low, then the lost profit due to renting is insignificant. Conversely, if the costs associated with renting equipment are a large portion of the total job's budget, then contractors who own their own equipment have an advantage.

Working with a reputable rental company can provide an opportunity for hands-on experience with newer equipment, as well as a chance to compare different options before committing to purchase. Renting can be a cost-efficient way to trial the technology and evaluate payback and jobsite efficiencies that could contribute to a justification for purchasing additional equipment, potentially increasing productivity, reducing fuel costs and/or maintaining quality standards.

Consider cash flow impact

Prior to taking action, a financial forecast should be conducted to ascertain the impact of any expenditure on your cash flow. This, in turn, will reflect on your capability to take on larger projects and facilitate the growth of your business. If cash flow is impeding success, exploring contractor financing options may offer a solution for purchasing resources to keep your business advancing.





Factor in Depreciation/Resale Value

Do your research when purchasing equipment, as some machines are worth more when you sell them. Consider the annual depreciation and performance when cycling in new equipment over a set period, as it may impact the rent/buy decision.

Focus on Fleet Management

Evaluate your core competencies to determine if fleet management is included. If so, you may want to purchase your own fleet. However, outsourcing may be a better option if transportation, storage and maintenance are not primary skills. Another trend in the construction industry is to set up a dedicated division or corporation for equipment management. This dedicated focus allows for cost control while fulfilling the needs of an “internal client” or sister company. If your company is not proficient in these areas, renting equipment may be more beneficial.

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Cost savings: Investing in your own equipment can be a cost-effective option as it eliminates the need for rental fees that can quickly add up over time. Additionally, having their own equipment can save time and effort in renting, delivery, and pick up hassles.

Increased productivity: By owning equipment, construction companies can have more control over their equipment schedules and minimize any downtime caused by equipment unavailability. This means projects can be completed faster and more efficiently, leading to higher productivity and increased profitability.

Customization: Owning equipment allows construction companies to customize their machinery to meet the specific requirements of their projects. This customized equipment can provide improved project outcomes and increased efficiency on job sites.



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Flexibility: with your own equipment, you have the freedom to use it whenever you need it and for how long you need it.

Reliability: owning your own construction equipment means you can take care of it properly and ensure that it is in optimal condition, making it less likely to break down during critical job moments.

Enhanced safety: using the same equipment consistently can increase safety for construction workers as they become more familiar with the machines.

Tax benefits: owning your own equipment can offer tax benefits such as expense deductions and depreciation write-offs.

Competitive advantage: having your own equipment can provide a competitive advantage over businesses that rely solely on rental equipment.

Opportunity to generate additional revenue: Construction companies can also lease or rent out their own equipment to other companies when they are not using it, providing an additional source of revenue and further offsetting the initial investment in equipment.

Long-term investment & Resale value: purchasing construction equipment is a long-term investment that has the potential to benefit your business for years to come. With purchased equipment, there is the potential to sell it down the line when no longer needed, recouping some of the initial investment costs.



Equipment Rentals:

Reduced costs: Renting construction equipment is cost-effective as it eliminates the need to invest in expensive machinery and tools, which can be especially beneficial for small businesses or contractors who work on short-term projects.

Flexibility: Renting equipment can also provide greater flexibility when it comes to scheduling jobs and adapting to changes in project demands, which can be particularly vital for rapidly changing construction projects.

Improved project efficiency: Renting equipment can improve efficiency and productivity by ensuring that contractors and construction workers always have the latest and well-maintained equipment at their disposal, which reduces downtime and eliminates the need for costly repairs.

Latest equipment: Renting allows companies to access the latest technology and advanced equipment without investing in it. This can help companies to remain competitive without incurring large capital expenditures.

Reduced maintenance and repair costs: By renting equipment, contractors can avoid additional costs related to maintenance, insurance, and storage, which can be particularly beneficial for small businesses or contractors who work on a tight budget.

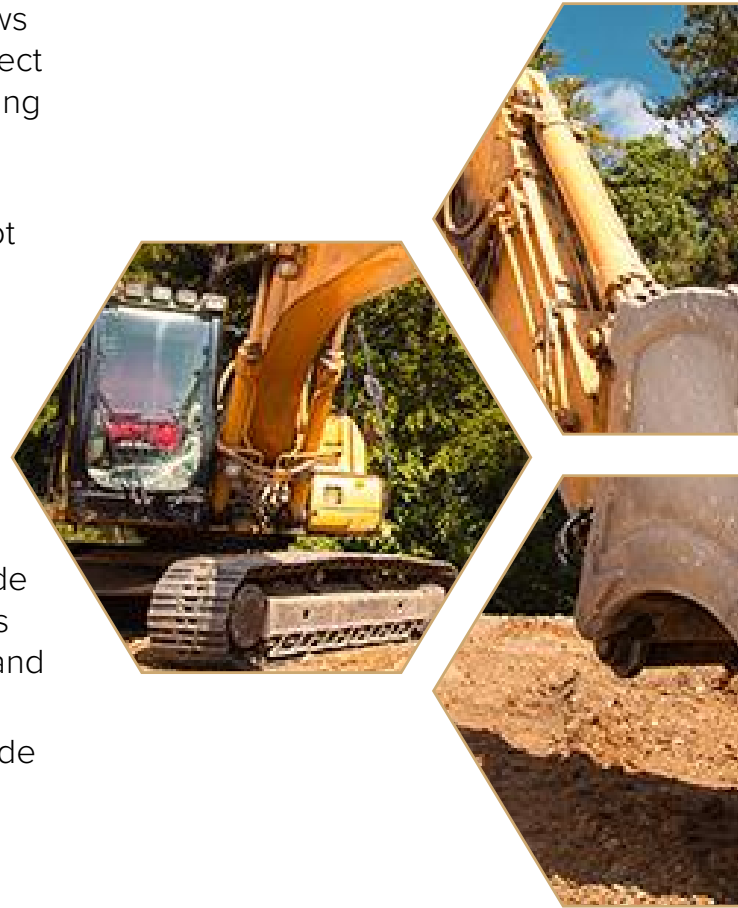
Scalability of operations: Renting equipment allows companies to scale their operations based on project needs, without the burden of owning and maintaining equipment that may not be actively used.

No need to store equipment: Renting equipment relieves companies of the need to store it when not in use, freeing up space for other purposes.

Access to expertise: Rental companies often have experienced personnel who can provide guidance on equipment use, maintenance, and safety. This can be particularly useful for companies that may not have in-house experts on equipment use and maintenance.

Reduced downtime: Rental companies often provide immediate replacements for equipment that breaks down or develops a fault, minimizing work delays and downtime.

Improved safety: Rental companies typically provide equipment that meets safety standards, reducing safety risks associated with equipment failures or issues.



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equipment sales

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In 2002, a strategic decision was made to specialize in the Sales, Rental, and After-Sales Support of Equipment for the Construction, Agricultural, and Industrial Markets. The company is a leading supplier of competitively priced brand name equipment and the authorized dealer of the following brands in select Caribbean countries, including Trinidad and Tobago.

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IN THE NEXT ISSUE OF The Contractor: FEATURED - ANSA MOTORS EQUIPMENT RENTALS

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*Andrew Crooks
Managing Director / CEO*

FT Farfan Ltd places a high priority on comprehending their clients’ requirements and customizing their solutions to suit these needs. They employ highly skilled experts in their respective fields to achieve outstanding performance. Furthermore, FTF demonstrates a willingness to adapt and evolve, while keeping up with the latest trends and exploring new approaches to improve their services. Overall, their custom solutions, talented team, and adaptability enable them to deliver consistent, exceptional results.

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equipment sales

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SHACMAN L3000

Basic Parameters

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Length: up to 22'

Engine: Cummins/Weichai

Rated power:

180hp - 210hp

SHACMAN F3000

Basic Parameters

Wheel base(mm):

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Length: up to 30'

Engine :Cummins/Weichai

Rated power:

385hp - 420hp

SHACMAN X3000

Basic Parameters

Wheel base(mm):

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Length - up to 30'

Engine: Cummins/Weichai

Rated power:

385hp - 420hp

FT Farfan has added Shacman trucks to their heavy equipment portfolio, which already includes renowned brands like JCB, Cummins, Atlas Copco, and JLG. As the exclusive distributor in Trinidad and Tobago, they are now offering a range of new heavy-duty trucks, including dump, tractor, cement, flatbed, water, garbage, and other specialty trucks at an affordable price for their customers.

FT Farfan has secured the exclusive dealership for Shacman trucks in Trinidad and Tobago. This decision was made after conducting a thorough evaluation of over 1,200 trucks sold in 9 different countries under rugged and demanding conditions.

Shacman trucks come with a 1-year warranty that covers unlimited miles and full bumper to bumper protection. FT Farfan employs Shacman trained technicians and can provide parts quickly in case of an accident due to their extensive regional network and partnerships.

The combination of Shacman trucks' high quality, FT Farfan's strong reputation for parts and service support, attractive financing options through major financial institutions, or our lease option and Shacman Company's solid commitment is expected to have a revolutionary impact on the trucking industry in Trinidad and Tobago. This is likely to create new opportunities for transportation contractors and companies of all sizes.

equipment sales



JCB Tougher in every environment

JCB, one of the top three construction equipment manufacturers in the world, invented the backhoe loader in 1952. With over 14,000 employees on four continents, JCB sells their products in 150 countries, offering a range of more than 300 machines.

JCB is renowned for their exceptional engineering facilities and unparalleled customer service. Starting as a small agricultural tipping trailer builder in 1945, JCB's success is a result of innovation, ambition, and hard work. Their innovative software system, Live Link, enables remote management of JCB machines through online, email, or mobile phone. This system provides access to machine alerts, fuel reports, and history information, with all data stored securely.



3DX PRO BACKHOE

The 3DX PRO is the ultimate performing machine with easy to use controls and many automation features, designed to improve productivity and fuel consumption.



205 NTX EXCAVATOR

JCB offers a large range of track machines from 11 to 37 tonnes. Productivity is built into every JCB tracked excavator, along with class-leading ease of maintenance, tough components and exceptional operator comfort. Four working modes mean you can tailor your machine's performance perfectly to any application in any environment.

equipment sales

135 SKID STEER LOADER



The JCB Skid Steer Loader 135 has the best-in-class fuel efficiency, lowest maintenance cost and very high productivity among Skid Steers.

Its unmatched structure & design helps the machine to perform in tougher applications and work in confined areas. Now with the JCB's advanced telematics technology, Skid Steer Loader is completely revolutionized. Stay connected to your machine with LiveLink, accurately monitor machine-hours, location, and get service alerts for advanced connectivity and security. With a wide range of attachments, perform all kinds of tasks and always look for a better way with the JCB Skid Steer Loader 135. Our unique single boom and side entry design makes this skid steer loader comfortable, safe, economical, productive and tough.

35Z-1 MINI EXCAVATOR

Introducing the new Stage V 35Z-1 zero tailswing mini excavator. The New Generation 3.5T compact excavators

The new 35Z-1 is one of the New Generation Stage V machines with no need for electronic control, aftertreatment or EGR. It has zero tailswing for easy and safe manoeuvrability, especially in confined spaces and 100% steel bodywork.



116D ROLLER



The JCB 116D has been designed to make things easier in your world. It's easy to use, easy to service and with a high centrifugal force combined with a thick drum to give outstanding density in fewer passes, it's also easy to be more productive.

IN THE NEXT ISSUE OF *The Contractor*: FEATURED - FT FARFAN EQUIPMENT RENTALS

Best Water/Wastewater Management Practices for Construction Sites



Water is a finite resource; therefore, protecting freshwater sources is vital. If improperly managed, construction sites could contribute negatively to water pollution. It is therefore imperative that construction companies minimise water pollution and maximise their sustainability by adhering to environmental guidelines and regulations and adopting environmentally sustainable practices.

The EMA urges all to do their part to protect precious water sources and act in accordance with the National Environmental Policy (NEP), 2018, Priority Area 2, *Sustainably Managing Natural Assets.*

Given this significance, the EMA shares best waste/wastewater management practices for construction sites:

- Preserve as much of the existing vegetation as possible. Clearing of vegetation should be done on a phased basis to minimise the exposure time of the soil.
- Preferably, all earthen works should be done in the dry season (with wetting of the area to manage dust emissions).
- Temporary measures such as erosion control blankets, plastic sheeting with anchors should be used to cover exposed earthen areas, especially on slopes.
- Control the migration of sediment from the construction site via measures such as, but not limited to, settling ponds, catch pits, sediment fences and filter berms.
- Approach roads should be kept clear of mud, debris, gravel, sediments, or other materials generated from construction activities at all points of site ingress and egress for vehicles. Those measures can include, but are not limited to:
 - Installation and maintenance of a stone-stabilised pad or temporary gravel entrance/exit, which shall include an aggregate layer at the site ingress and egress area(s) of sufficient dimensions to accommodate vehicles utilising the site. The entrance(s) and exit(s) shall be wide enough at the point of connection to the public roadway(s) to accommodate the turning radius of vehicles. There shall be provision for silt removal via complete contact of the vehicle's tyres or tracks for at least one (1) revolution with the stone-stabilised pad or temporary gravel entrance;
 - Installation and maintenance of a wash bay area in conjunction with the temporary gravel entrance to facilitate the washing of the wheels of the vehicles before exiting to the public roadway(s). This area shall have a gravel base, which shall be installed to allow removal of sediments by directing the water from the area to a temporary holding basin.

- Washings from premix concrete trucks, wheelbarrows, etc., should not be discharged into any municipal drains or watercourses, but instead, channelled to mechanisms such as a lined washout pit or washout containers, where the wash water will be allowed to evaporate. The remaining cementitious solids can be broken up and reused in the construction process.
- On large construction sites with heavy concrete work, washouts should be placed at multiple locations. However, they should not be placed within 15 m. of municipal drains or water bodies.
- Concrete washout mechanisms should be inspected daily for any compromised lining or sidewalls from construction activities and mended immediately.
- Concrete washout mechanisms should be inspected after heavy rainfall to determine if they have exceeded their capacity of over 75 %. When the container is filled to over 75 % capacity, the wash water should be allowed to evaporate to avoid overflow.
- Separate, secure, impervious bunded facilities should be constructed for the storage of any chemicals/ admixtures during the construction to prevent their release to the environment through spills and accidents. These bunds shall have a capacity of at least 110 % of the maximum volume of the largest tank (or 25 % of the aggregate total capacity of the tanks, whichever is greater) and incorporate a drainage sump and an additional minimum wall height of 150 mm to accommodate rainfall and fire-fighting foam.
- Fuel dispensing via mobile units should be on impermeable surfaces and located as far as practical from any natural water body. Additional measures such as drip pans shall be utilised.
- A Spill Response Kit should be maintained in a readily accessible area on-site with suitable and sufficient sorbents and other related supplies which will aid containment and clean-up of spills or releases. Personnel who are expected to use the Spill Response Kit should be provided training on its use.

The United Nations (UN) informs that “Decades of misuse, poor management, overextraction of groundwater and contamination of freshwater supplies have exacerbated water stress. In addition, countries are facing growing challenges linked to degraded water-related ecosystems, water scarcity caused by climate change, underinvestment in water and sanitation and insufficient cooperation on transboundary waters”. The adoption of best water/ wastewater management practices on construction sites is therefore crucial to protecting precious water reserves and harmonizes with the UN’s Sustainable Development Goal (SDG) 6, *Ensure availability and sustainable management of water and sanitation for all.*

References: Stormwater Best Management Practice, Concrete Washout. February 2012.

<https://www3.epa.gov/npdes/pubs/concretewashout.pdf>



PROTECTING ENVIRONMENTAL & HUMAN HEALTH THROUGH POLLUTION CONTROL

ADDRESSING CLIMATE CHANGE & ENVIRONMENTAL AND NATURAL DISASTERS

SUSTAINABLY MANAGING NATURAL ASSETS

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How **Management Systems** help the **Changing** face of **Business and Quality**



As we look back on 2022, we realize that businesses were forced to reckon with worldwide storms which included multiple recessions, adverse costs of living, the repercussions from the Ukraine War and the ongoing COVID-19 pandemic.

As such, innovation played heavily on construction and business survival. Financial or end of calendar year reporting were either ripe with struggles or detailed logs of achievements. Supply chain challenges, technology usage, and risk management became part of reports on income, expenditure, manpower, downtime,

customer sales, health and safety management, talent management and waste management.

However, this plethora of information which came at a rapid pace over a short space of time petered out until such was required for any future calamitous event/s. Business Owners asked - how do we get this information available and prepared swiftly? How do we use the information to perform actions in a cost effective, resource prudent and customer centric manner? For any company serious about Performance in these key areas, the answer lies within implementation of a Management System.

Management Systems

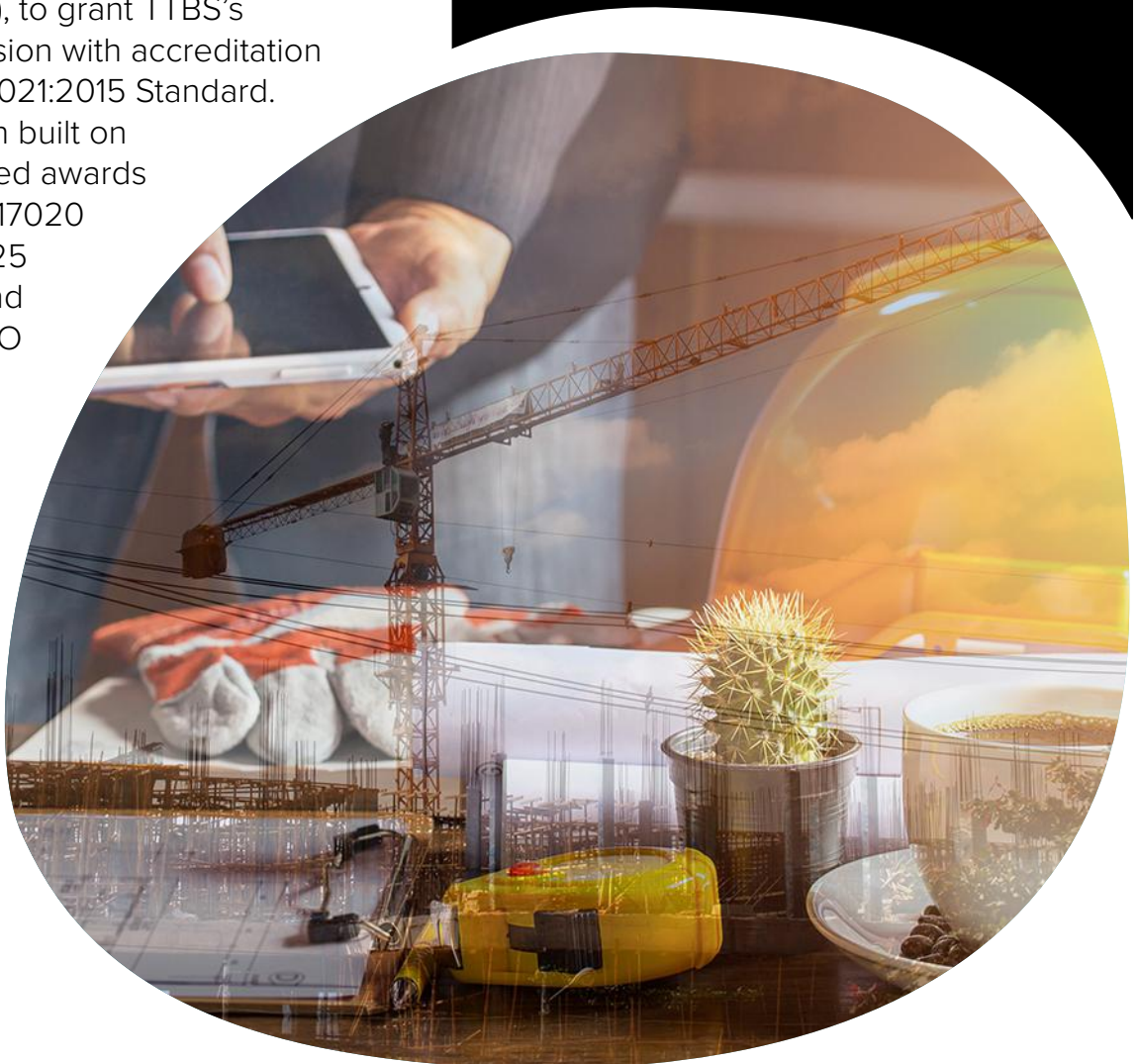
There are many types of Management Systems. which include Quality, Environmental, Health and Safety and Energy Management Systems, just to name a few. At the Certification Division of the Trinidad and Tobago Bureau of Standards (TTBS), third party Certification is offered for Quality Management systems against the requirements of ISO 9001:2015 as well as offered for Environmental Management systems, i.e. against the requirements of ISO 14001:2015.

In October 2022, the independent assessor body, Jamaica National Agency for Accreditation (JANAAC) Council approved the recommendation from the Accreditation Evaluation Committee (AEC), to grant TTBS's Certification Division with accreditation to the ISO/IEC 17021:2015 Standard.

The accreditation built on previously attained awards namely, ISO/IEC 17020 and ISO/IEC 17025 accreditations and certification to ISO 9001:2015.

TTBS Certification Division's International Accreditation Forum's (IAF's) accreditation scopes include:

- **Mining and Quarrying;**
- **Pulp, Paper and paper products;**
- **Printing companies;**
- **Concrete, cement, lime, plaster, etc.;**
- **Wholesale and retail trade: Repair of motor vehicles, motorcycles an personal and household goods and;**
- **Engineering services.**





What does it mean to have a management system implemented within your organization?

Third party Certification of an implemented Management system is geared towards demonstrating confidence in results, outcome control, risk management and business continuity which in turn serves to build trust in our National Quality Infrastructure (NQI).

Management systems are definitely worth the cost as they allow information to be documented and organized and to have staff trained and ready - from production staff to top management. Think about how easy a management system can prepare you the next time you face an auditor!

Certification to ISO 9001 demonstrates your credibility and efforts towards product perfection to the customer, and moreover, a commitment towards ensuring customer satisfaction, partner recognition and employee value.

ISO 9001:2015 audits of uncertified applicants in the past have unearthed the dangerous usage of rusted open pressure valves in pressured gas pipelines, the unintended daily exposure of persons to grade 4 NFPA hazardous chemicals, and the unknowing release of tonnage of product without recovered cost or correction to the process. With the ongoing climate emergency and increased social responsibility pressures thrust upon businesses, the usage of the standard, ISO 14001:2015 is becoming an integral tool in the Construction Sector. Water, energy and waste resource handling speaks towards risk management. Risk management speaks towards efficiency. Efficiency speaks directly to growth, projections and profit. Isn't that the aim of being in business?

Quality, a look to the future

The future of the Construction, manufacturing and energy sector is already here. What were once topics of science fiction are now our reality. We live in a world where Artificial Intelligence, cloud computing, automation, digital transformation, going paperless, robots, are all part of commerce in 2023. We live in a world with almost limitless information at our fingertips. How we sort and use all of this information in an efficient and effective manner can be a daunting task.

However, the implementation of a Management System (ISO 9001:2015) filters “the noise from the signal” to efficiently provide the best product or service to meet customer expectations. Another expectation here is that market competitors without any third party Certified Management Systems will give the Certified organizations a boost since customers will notice whose product and experience performed outstandingly for their hard earned money.

In conclusion, the handling of a process is the key towards either giving up, staying in survival mode, or making a profit. A well implemented Management System that is compliant to either ISO 9001:2015 or ISO 14001:2015 considers all useful inputs, processing and outcomes to bring about success. If you would like to know more about these two standards and third party Certification, please contact the Certification Division of the Trinidad and Tobago Bureau of Standards where our Management Systems Team would be happy to assist you.



Author

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Bureau of Standards**

Standards for the past twelve years. His focus is mainly on Management System Certification catering to both local and regional organisations within the CARICOM Community.

His goals are to see all companies, whether large, medium or small, grow through innovation and brilliant ideas. He hopes that one day through his efforts and support that the CARICOM business community will be the benchmark strived for by non-CARICOM multinational conglomerates as they pursue success.



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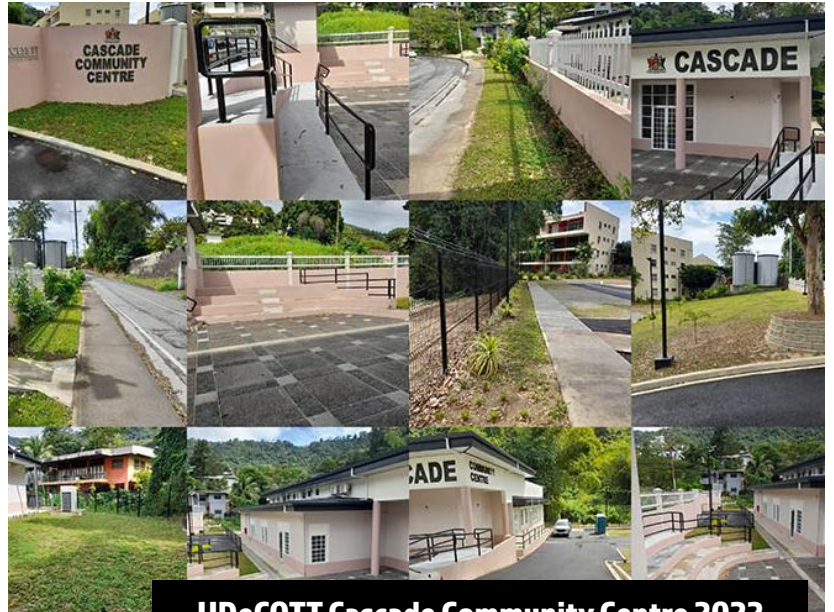
TTCA Welcomes New Member



Trinidad Pro Construction Limited

Trinidad Pro Construction Limited (TPCL) was established as a limited liability company in November 2009. Possessing over 10 years of knowledge in the construction industry, TPCL has earned considerable expertise and the trust of numerous respected clients thanks to its highly efficient, reliable employees.

TPCL boasts a considerable workforce and experience as well as an affordable cost structure that allows timely and safe delivery of services. We value each client individually and tailor our projects to their particular tastes and needs. Each project is overseen by qualified project managers skilled in identifying, diagnosing and rectifying any issues that may arise. This attention to detail is part of the guarantee we can make to all our customers of top-notch service from TPCL.



We have the capability to confront today's economy and actively seek projects from all possible sources, including the private and public sectors, individuals, government projects, homeowners, new construction and renovations.

Trinidad Pro Construction Limited (TPCL) aims to become a foremost General Contracting Firm in the Construction Industry both locally and abroad. We intend to provide top-quality services to our customers promptly, utilizing our expertise, project management, and engineering capabilities. Our commitment is to ensure our clients' satisfaction and guarantee the safety of our staff members.

TPCL Services include: Civil and Building Engineering, Design and Construction, Rehabilitation/Renovation/Restoration Work, Demolition, Earthworks: Excavations, Underpinnings, Shoring & Piling, Infrastructure, Foundation, Structural Steel Fabrication & Erection/Installation, Roads and Carparks, and more.

- ABEL Building Solutions
- Adam's Project Management & Construction Limited
- Agostini Building Solutions
- All Rock Investment Ltd
- Alpha Engineering & Construction Ltd.
- Anjay Limited
- ANSA Coatings
- ANSA Motors
- Bhagwansingh's Hardware
- Broadway Properties Limited
- Building Professional Ltd
- Cadmus Holdings Ltd
- Caribbean Industrial Research Institute (CARIRI)
- Capital Signal Company Ltd.
- CBE Trinidad Ltd.
- Comfort Engineering Limited
- Concepts & Services Company Limited
- Coosal's Construction Company Ltd.
- D. Lak Transport Ltd.
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- Dipcon Engineering Services Ltd.
- Doc's Engineering Works Ltd.
- Eastern Engineering & Marketing Services (1994) Ltd.
- Emile Elias & Co. Ltd.
- Fairways Construction Company Ltd.
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- General Earth Movers Limited
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- LAING Sandblasting & Painting Co. Ltd.
- Lifetime Solutions
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- Lutchmeesingh's Transport Contractors Ltd.
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- Ramkaran Contracting Services Ltd
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- Sammy's Multilift Services Ltd.
- SCL (Trinidad) Limited
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