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QUARTERLY E-MAGAZINE JANUARY - MARCH 2024 ISSUE NO.7

**The Double-Edged
Sword of High
Performance: The
Pitfalls of Overloading
Top Performers**

**The Misguided use of
the Design-Build Form of
Contract in the State Housing
Development Sector**

**Obligations of
Quarry Operators:
From Approvals
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President's Message



Glenn Mahabirsingh
TTCA PRESIDENT

For 55 years TTCA has advocated the highest safety and ethical standards; is a leading creator of jobs and meaningful employment; and is a major contributor, in countless ways, to the growth and development of the economy and the wealth and calibre of the country's infrastructure. We are committed to continue on this path for 2024 and beyond.

TTCA has prioritised training in all aspects of the construction sector to guarantee a supply of well-skilled, appropriately trained, human resources who can ensure the efficient delivery of high-quality infrastructure - be it roads, bridges, culverts, schools, hospitals, or commercial buildings.

During 2023, our Training Committee Chaired by Lisa Ramoutar, a TTCA Board Director, has organised four training seminars that saw over 1,000 participants trained in road construction, understanding the new procurement legislation, and best practices in concrete and roofing.

And over the last five years, although hindered by Covid, we welcomed over 2,000 attendees to our training seminars. In addition to the topics already mentioned, those seminars also covered:

- Risk Management in Construction
- Requirements for Small Building Construction
- Statutory Approvals for Building Projects
- FIDIC Contract Updates
- Structural Steel Framing in Roofing and
- Doing Business in Guyana

In addition to training and all the critical infrastructure our members have safely built, the TTCA has been vocal on many issues of national importance within the construction industry. **These include:**

- the public opening of tenders
- increased local participation and local content on large projects.
- two Commissions of Enquiry and, of course,
- public procurement reform, which was finally fully proclaimed in 2023.

Thank you to JCC, the Joint Consultative Council for the Construction Industry, for the unrelenting focus on procurement reform. This is why we have this new legislation today. The JCC empowers industry stakeholders to speak clearly and compellingly with one unified voice. The TTCA is proud to be part of this umbrella body for the industry and will continue to support its invaluable work.

TTCA has been advocating for procurement reform for the last 55 years, we have been cautioned that contractors may live to rue the proclamation of this legislation. That caution should remind all stakeholders that the work does not end with the Act being proclaimed. We share a responsibility to ensure that the goals and spirit of the Act are achieved and that its provisions and regulations continue to be improved to the benefit of Trinidad and Tobago as a whole.

Under the Act, contractors must meet the standards and requirements mandated in the Act. Our actions, our performance, our decisions must stand up to scrutiny and to the application of the concepts that underpin the Act - those of Accountability, Transparency, Value for Money, Ethics, Efficiency, Fairness and Competition.

Once we are providing goods, works or services involving the use of public money, this is fair and welcome scrutiny as we all seek to secure a sustainable future for our country and our children.

Indeed, this is why an unprecedented number of civil society organisations came together and spoke with one voice on this issue.

Thank the many individuals who worked behind the scenes and in the forefront to make public procurement reform a reality. The persons who stood out in leading the charge were Winston Riley, Mikey Joseph, Emile Elias, Afra Raymond and, more recently but just as boldly, current JCC President Fazir Khan.

They were fearless and committed to the cause, they sacrificed, they provided leadership and vision, and they all succeeded in putting public procurement reform squarely and clearly in the public domain.

Tribute and thanks are also due to all the civil society organisations who were likewise committed to the cause and whose united stand amplified the call for procurement reform a thousandfold. They include the other member organisations who formed the JCC with the TTCA, namely:

- the Association of Professional Engineers of T&T
- the T&T Institute of Architects
- the T&T Society of Planners, and
- the Institute of Surveyors of T&T.

Then there were the JCC's very influential civil society partners:

- the Trinidad & Tobago Chamber of Industry & Commerce
- the American Chamber of Commerce of T&T
- the Trinidad & Tobago Manufacturers' Association and
- the Trinidad & Tobago Transparency Institute (TTTI)

The role and contribution of all these professional and civil society groups are now part of the historical record.

Contractors are already thrilled with one provision of the new Act. Clause 27:1 which states that no later than six weeks after the approval of the National Budget, the procuring entity must publish on their website or other electronic format information regarding their planned procurement activities for the following 12 months.

This is of immense value to contractors and the country as a whole as it will assist us in doing better planning. What projects should we focus on? What technology or equipment might we need to acquire? Do we have the right manpower? This information, on a timely basis, is a win-win for both Industry and the State in terms of competitive and efficient tendering.

Thank you to the procurement entities that have begun meeting the requirement that, at the end of each quarter, they report on all contracts awarded in the preceding quarter, including the name and value of the awarded contract. In this regard, I want to single out the Ministry of Works, UDECOTT and WASA for their clear and detailed online reports that are available on their respective websites.

I know there are other agencies that have responded to the OPR's (Office of the Procurement Regulator) Public Advisory on this matter and the TTCA hopes to see all other State agencies comply in a timely manner with this legal requirement.

The TTCA is also pleased to see more Notices re public invitation to tender being advertised. This not only speaks to greater transparency in the expenditure of public funds, but opens up more business and investment possibilities to a wider cross-section of businesses and entrepreneurs. I encourage everyone to peruse the information that is now becoming so accessible to find the unexpected Business opportunity.

TTCA has been in communication with the OPR on the matter of some agencies charging for electronic copies of tender documents and we are satisfied the matter will soon be resolved.



Now that we have the new procurement legislation, the TTCA will be moving to renew its efforts to have another critical and long-delayed piece of legislation also become a reality - Contractor Licensing and Registration. This is certainly not a new priority. In fact, it is one near and dear to Mikey Joseph's heart and he almost saw it happen when Cabinet, in March 2010, agreed it should be done and announced it would put legislation in place. But sadly, it did not move forward.

We must not give up on this legislation. Contractor Registration and Licensing would protect individuals and businesses from losing their money to unscrupulous and unqualified contractors and ensure projects are completed safely and effectively.

It would maintain fair competition; discourage unqualified or unlicensed persons from entering the market; and provide the public with the added comfort of knowing that registered contractors would have the necessary bonds and insurances to protect against any liabilities.

On behalf of the TTCA, I also take this opportunity to make two other appeals that would directly impact the efficient execution of State-financed projects. We urge the Government to create a joint public & private Committee that brings all stakeholders in the construction industry together to share information, plan projects, resolve bottleneck issues, and brainstorm solutions to problems before they become a crisis or cause public outcry.

We would also like to have a mechanism to facilitate the supply of foreign currency to execute State projects. The construction industry certainly welcomes the large number of projects announced in the 2023/2024 Budget. But to execute these projects in the most timely and cost effective way requires timely access to foreign exchange to take advantage of the best prices and better manage the new global supply chain challenges.

TTCA's three New Year wishes as we plan for the future:

- contractor registration and licensing legislation
- a joint public-private construction planning committee and
- a foreign currency mechanism for publicly funded construction projects.





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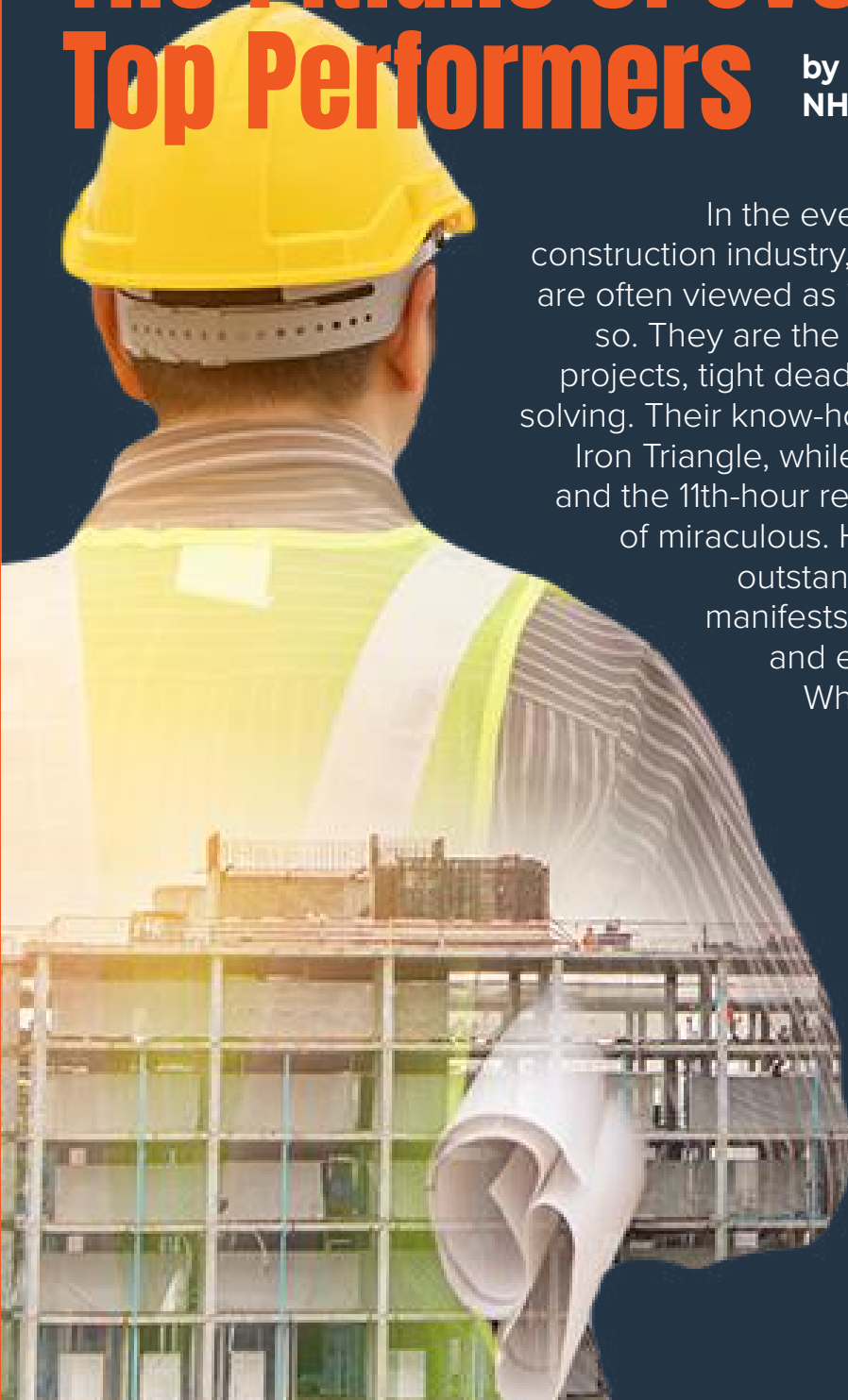
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The Double-Edged Sword of High Performance: The Pitfalls of Overloading Top Performers

by Mikey Thackoor
NH International Caribbean Ltd



In the ever-competitive crucible of the construction industry, high-performing employees are often viewed as invaluable assets, and rightly so. They are the go-to people for challenging projects, tight deadlines, and complex problem-solving. Their know-how and ability to manage the Iron Triangle, while getting those reports done, and the 11th-hour requests done is nothing short of miraculous. However, the reward for their

outstanding performance frequently manifests as more work, longer hours, and ever-increasing expectations.

While this phenomenon, known colloquially as “Performance Punishment,” may seem like a compliment in disguise, it

can have detrimental effects on employees and the broader work environment,

if not recognized and managed effectively. I

will attempt to examine the consequences of overloading top performers and suggest

more sustainable ways to manage talent in the construction industry.

The Burden of Excellence

For high-performing employees, excellence becomes both a gift and a curse. Their success generates more responsibilities and workloads, often without commensurate compensation or recognition. While these employees may initially relish the challenges, the relentless pace and mounting expectations can lead to burnout, a decrease in work quality, and an increased likelihood of errors. As mentioned, it is a double-edged sword, if these employees do not outperform their co-workers, they may never get a promotion. In the construction industry, tenure is seldom a reason for advancement. Employees must go the extra mile, be it implied or implicit if they intend to rise to the top of the heap. When they do, the reward is more responsibility, which when not coupled with remuneration as is often the case, eventually leads to resentment and feelings of being taken advantage of.

The Domino Effect on Team Dynamics

When top performers are continuously overloaded, it triggers a domino effect across the team. This increased workload, concentrated on a few, cultivates tension, jealousy, or resentment among other members, who might feel overshadowed or underutilized, often leading to team and project failures. The 'tiler production' example illustrates this issue: two tilers, one placing 10 tiles per day and another placing 5, are expected to collectively lay 15 tiles per day. However, the actual output is frequently less, demonstrating the counterproductive nature of over-relying on high performers. This shortfall arises from coordination challenges, work interference, and morale issues. Such a scenario is a classic case of Performance Punishment, where high performers, burdened with extra workload, risk burnout and reduced efficiency. It highlights the importance of balanced work distribution, recognizing that increasing workload on top performers doesn't necessarily lead to proportional increases in team output and can disrupt team synergy and individual well-being.

The management of your top-performing talent is critical. Furthermore, stretched too thin, even high-performing employees can start to make mistakes, potentially compromising team performance and project outcomes.

Safety Risks

The construction industry is inherently hazardous, requiring meticulous planning, strict compliance with safety regulations, and constant vigilance. Gravity is undefeated, what goes up, must come down. Overworked employees, even if they are top performers, are prone to lapses in judgment and attention, thereby increasing the risk of workplace accidents. Complacency also becomes the norm and a higher degree of risk tolerance. This poses not only a moral dilemma but also exposes companies to substantial legal liabilities. Nothing runs at maximum all day every day, we must throttle back to idle and cool down, no matter how good the cooling system performance.

Long-Term Business Implications

The long-term impact of Performance Punishment can be severe. High turnover rates among high-performing employees can result in institutional knowledge loss and hamper productivity. Replacing such employees is not just costly in terms of recruitment but also affects project timelines, client relationships, and the company's reputation. The impact is not only felt at the project for a company, but it serves as a deterrent to prospective new employees, let's face it, in the Caribbean nothing stays secret for long.

Sustainable Alternatives

Fair Work Distribution

Fair work distribution is crucial for reducing employee burnout, maintaining team morale, and mitigating risks associated with over-reliance on high-performing individuals. By periodically auditing workloads, promoting transparent communication, and mapping skills, and implementing rotation and cross-training programs, companies can evenly distribute tasks and responsibilities. This fosters a healthier, more versatile workforce capable of handling various challenges, ultimately leading to more efficient and effective project completion.



Setting Realistic Expectations

Setting realistic expectations in the construction industry serves as a cornerstone for maintaining a balanced and productive work environment. By actively monitoring workloads and aligning them with the actual capabilities and skill sets of employees, management can prevent burnout and decrease the likelihood of errors or safety incidents. Transparent communication about project timelines, individual responsibilities, and company goals helps to create a culture where employees feel both challenged and supported, rather than overwhelmed. This approach not only enhances individual well-being but also contributes to higher levels of team cohesion and project success.

Employee Well-Being Programs

Employee Well-Being Programs are increasingly becoming a vital component in the construction industry, an environment often fraught with physical and mental stressors. Offering resources like mental health support, flexible work schedules, and additional leave options not only helps to alleviate stress but also contributes to preventing burnout among high-performing employees. By prioritizing the well-being of all staff, companies can foster a more engaged, productive, and loyal workforce. These programs, therefore, serve a dual purpose: they improve the quality of life for employees while also boosting overall productivity and reducing turnover, making them a strategic investment for long-term success.

Recognition and Reward

Recognition and reward mechanisms are indispensable in fostering a motivated and content workforce, particularly in the high-stakes environment of the construction industry. Beyond mere financial incentives like bonuses or pay hikes, these mechanisms can include public commendations, promotions, or opportunities for professional development. By acknowledging and rewarding the hard work and skills of high-performing employees, companies do more than just boost individual morale; they also set a standard of excellence that motivates the entire team. Consequently, recognition and reward systems serve not only to retain top talent but also to cultivate a culture of high performance, teamwork, and mutual respect, which are essential for long-term success in any competitive industry.



What to do as an Employee (High-Performing Employees)

1. Recognize Limits: Understand personal limits to prevent burnout. It's important to know when to say 'no' to additional work or to communicate workload difficulties.
2. Seek Support: Don't hesitate to seek help or support, whether it's for managing workload or for mental health concerns.
3. Communicate Effectively: Maintain open communication with management about workload, expectations, and any difficulties faced in completing tasks.
4. Engage in Self-Care: Prioritize personal well-being, including mental and physical health, to maintain high performance without compromising health.

What to do as the Employer (Management):

1. Fair Work Distribution: Regularly audit workloads and implement a system to evenly distribute tasks and responsibilities. Avoid over-reliance on high-performing individuals.
2. Setting Realistic Expectations: Align workloads with employees' actual capabilities and skills. Be transparent about project timelines and individual responsibilities.
3. Employee Well-Being Programs: Introduce programs that focus on mental health support, flexible work schedules, and additional leave options to reduce stress and prevent burnout.
4. Recognition and Reward: Implement mechanisms for recognizing and rewarding hard work and skills. This includes financial incentives, public commendations, and professional development opportunities.



While the immediate benefits of leveraging high-performing employees in the construction industry can be tempting, the long-term costs of Performance Punishment far outweigh the gains. Navigating the complexities of managing talent in the construction industry demands a nuanced approach, especially given the sector's competitive nature and inherent risks. While it might seem logical to place more responsibilities on high-performing employees, this practice, known as "Performance Punishment," has significant downsides, including increased risk of employee burnout, compromised safety, and a negative impact on team dynamics. Strategies such as Fair Work Distribution, Setting Realistic Expectations, Employee Well-Being Programs, and Recognition and Reward offer more sustainable alternatives. These approaches not only help in maintaining a stable and committed workforce but also contribute to a culture of continuous improvement and innovation. By focusing on these aspects, construction companies can achieve the challenging balance of driving performance while maintaining employee well-being. This balanced strategy doesn't just result in more efficient and effective projects; it also strengthens the company's reputation, aids in talent retention, and sets the stage for long-term success in a highly unforgiving, competitive industry."

"The candle that burns twice as bright burns half as long." - Lao Tzu



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Mr. Mikey Thackoor is an experienced professional in the construction industry with a track record of over 25 years working across the globe. Presently, he holds the position of Head of Operations (Eastern Caribbean) at NH International Caribbean Ltd. In this role, Mr. Thackoor provides expert leadership in project development, design, implementation, and execution to ensure optimal results are achieved.



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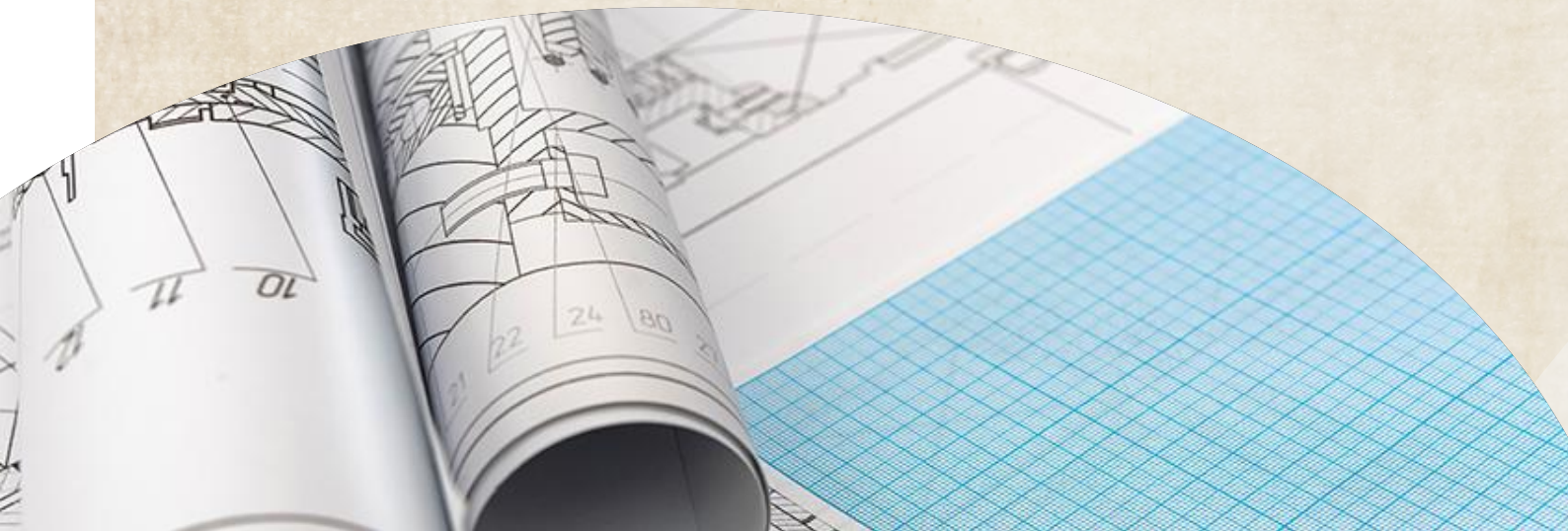
The Misguided use of the Design-Build Form of Contract in the State Housing Development Sector

An Engineer's view on issues related to the Trestrail Housing Development Project

by Vaughn I. Lezama
Consulting Engineers
Associates 2005 Ltd

Project Managers, Contractors and Engineers

A newspaper report on the stalled multi-million-dollar Trestrail Housing Development project as a result of the contractor being flagged and directed to undertake remedial works for major structural defects gave cause to consider why such extensive and significant structural defects, as reported by an independent engineer, could have indeed occurred on such a large-scale project. I have long been convinced that the major state contracting agencies which pursue the development of the state housing and building construction sectors, operate on the premise that all that is needed to achieve the state development objectives are Project Managers, Contractors and a Design-Build form of project procurement Contract. Managing a construction project requires the oversight of a Project Manager who, among other skill sets, has some level of experience in engineering design and construction practice or, depending on the scope and scale of the project, a Project Management Team that includes an engineer who has the competency to at least be able to discern whether a proposed design solution is efficient or sufficient for the intended purpose. Such capability is the hallmark of engineering judgement which comes with experience in design practice. Of this I am fully aware from firsthand experience as an Engineering Manager who has spent more than three decades exercising oversight of an engineering design office.



It would appear that the Project Manager or Project Management Team on the Trestrail Housing Development Project was not in a position to professionally scrutinize any design solution or construction practice proposed or implemented by the contractor as to its adequacy or efficiency. In any event, if even such capability did exist, there may have been no motivation to apply such scrutiny. This is because of the ill-advised notion that since under the design-build procurement contract, the Contractor is responsible for the efficacy of design solutions and for remedying any and all defects, there is therefore no risk to the Client. The misguided fallacy here is that the risks and costs for the project delivery are entirely to the contractor's account. Little regard is given to the opportunity costs to the prospective homeowners, the Client and the state as a result of the project being undelivered over several years and the lands and buildings remaining unoccupied and wasted.

The Dichotomy of Ignorance, Negligence or Indifference in the Quality Control Process

There was obviously a dichotomy or indifference to the issue of quality control on the Trestrail design-build housing project. The Contractor may have been led to believe that in the absence of objections or requests for technical justifications from the Project Manager, the intuitive alternative design solutions which he may have proposed or implemented were indeed efficient, sufficient and fit for purpose, although it remains his responsibility to ensure that it is. While such tacit approval, either through ignorance, negligence or indifference on the part of the Client, does not relieve the contractor of his responsibilities under the contract, it also does not serve the interest of the Project or the Client. There are several negative outcomes to this scenario. One is that the Contractor will have to find the financial resources to correct major structural defects, which can negatively impact his business prospects. Equally important is that the delay in delivery of the project will hurt the long-suffering public waiting to be allocated a public housing unit and the cost of the lost opportunity as a result of such circumstance. Both cases represent an opportunity lost to the country which carries a cost and do not in any way advance the image of the state contracting agency or the country's economic prospects.



The Problem and its Genesis

I am of the view that the genesis of the problem is the practice of state contracting agencies to acquire, by way of provisions in professional services contract, the intellectual property of architects and engineers who are engaged to prepare, among other things, generic design for housing units. In the public housing sector, the planning design drawings are put into the hands of various contractors under a design-build or design-build-finance contract for execution at construction sites across the country. There is an apparent view that there is no need for any further involvement of the engineer of record or for that matter any independent engineering input. This is so regardless of the anomalies of site topography or subsurface soil conditions which invariably require professional review and possibly redesign of generic foundation details as well as professional scrutiny of alternative design solutions, materials, methodology or specifications proposed by the contractor.

Given that generic foundation designs are based on an assumed flat surface, the challenges presented by the requirements for terraced foundations when multiple adjoining townhouse units are constructed on sloping lands are often overlooked with dire consequences. In addition, the generic foundation designs also assume shallow strip or pad footing foundations. However, these foundation types, by themselves, can turn out to be inadequate in soil types where augered piles are required to complement such foundations footings and in particular where the structure may be on deep soft soils or on unstable slopes such as near a natural watercourse as is often the case. There are indeed cases of housing unit structures which have experienced inordinate differential settlement, lateral movement or rotation, or all three of these conditions at the same time, due to inappropriate foundation type for the particular soils condition. While the superstructure of the constructed units may be robust so that they do not fall apart, the poor serviceability conditions that occur often render many units unfit for purpose

The misguided view and practice that project managers and contractors are the only industry players required to achieve the state's housing development objectives could be a likely reason for the challenges faced at the Trestrail housing project. This practice which has now become embedded among state contracting agencies has resulted in a current trend among young graduate engineers to become Project Managers because that is where the job opportunities are. The practice of the science of engineering as a technological knowledge-based profession no longer has any appeal among young engineering graduates because of reduced employment opportunities in that field. This is due to the diminishing direct engagement of the local consulting engineering industry in the process of project planning, design and construction oversight and has led to the continued decimation of local Engineering Consultancy practices.



Efficiency, Sufficiency and Constructability

It must be understood that constructability is not the same as design efficiency and sufficiency. In my experience, I have found that many of our contractors, and in particular the larger building and civil engineering contractors, do have in-house engineers/project managers with a relatively sound capability in bringing to the table the element of constructability in execution of challenging design solutions. However, there is still currently a dearth of in-depth design capability which would take time to develop.

While constructability is the ease of execution of a design solution it is not in itself a design solution and is disconnected from the requirements of design efficiency and sufficiency. If the reports in the media concerning the outcome of an independent engineer's investigation into defects which have occurred at the Trestrail Housing Development project are indeed correct, it is clear that the flaws in the project are the outcome of an absence of professional construction oversight. Some of the structural defects identified are so egregious that the trained eye of an experienced civil engineering technician or a graduate civil engineer would, if so inclined, have observed, if not entirely, at least to some extent, the level of engineering deficiency in the actual construction methods and materials. Furthermore, the reaction of the state agency to the outcome of the independent engineer's report emphasizes the fact the contractor is responsible for remedying any and all defects and that the works will not be taken over or any further payment made until such time that the defects are remedied. The defects identified are very substantial. They include the requirement for extensive soils remediation to support foundation loads, cracks at the grade change of adjoining townhouse units, stunningly inadequate concrete quality, use of corrugated galvanized roof sheeting in lieu of composite metal floor decking and lack of reinforcement where such is required and more. Such defects will possibly require demolition and reconstruction of major structural elements of the housing units. After a four-year delay in the project delivery and in the absence of the defects being remedied in a timely manner, then an undesirably bad outcome for all stakeholders is very likely.



Why the need for Professional Construction Oversight?

Given such egregious deficiencies, any reasonable observer will have to conclude, definitively, that there was no professional construction oversight on this project. One would further conclude that the project oversight was relegated to Project Managers whose sole function may have been that of progress scheduling and reporting and completely devoid of quality control oversight or competencies, or more likely, indifference to issues of quality control. Apart from ignorance or negligence, it is also likely that the project managers were otherwise disincentivized to exercise any quality control function. This is as a result of the misguided view of the contracting agency itself that since the contractor on a design-build contract is responsible for remedying any and all defects in design, materials or workmanship, it's all the contractor's risk. As such there is no need to expend unnecessary time in undertaking the mundane tasks of quality control as oppose to schedule monitoring to achieve the earliest possible delivery of the project.

This view has led to the belief that there is no need to spend money to engage the providers of professional engineering services to exercise construction oversight that would preclude such catastrophic events. In conclusion, it is interesting to note that, not for the first time, the services of professional engineers are engaged for forensic investigation purposes, after the disaster has occurred, rather than procured such services to ensure that such disasters are avoided in the first place.



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Vaughn Lezama is a Civil Engineer with over 44 years of engineering practice. He is the Chairman and Principal Engineer at Consulting Engineers Associates 2005 Ltd. Eng. Lezama is registered with the Board of Engineering of Trinidad and Tobago and is a Fellow and Past President of the Association of Professional Engineers of Trinidad and Tobago. He is also a Member of the American Society of Civil Engineers. Eng. Lezama has extensive experience in Engineering Designs, Technical Studies, Construction Supervision, and Contract Administration. He is highly trained in the use of the FIDIC suite of Contracts. Currently, Eng. Lezama serves as the Registrar of the Board of Engineering of Trinidad and Tobago (BOETT) and is responsible for maintaining the Register of Engineers in accordance with the Engineering Profession Act No. 34 of 1985.



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| TYPE | NAME |
|--|---|
| Large size Limestone (Crushed) (Melajo & Mayo) | <ul style="list-style-type: none"> • 20 mm or 3/4" Limestone • 1-2" -25-50mm Limestone • 2-4" 50-100mm Limestone |
| Small size Limestone (Crushed) (Bermudez & Melajo) | 10mm (-) or 3/8" Limestone |

ADMIXTURES

| TYPE | NAME |
|---|-------------------|
| High range superplasticizer | ISOFLOW 7660 |
| Retarder & Water Reducer | ISOPLAST2024 |
| Retarder | ISORETARD 2201 |
| Plasticizer and Retarder (Medium range) | ISOFLEX 7835 |
| Waterproofing | ISOFUGE 9350 |
| Air Entraining Agent | ISOSPHERE 5042 |
| Corrosion Inhibitor | ISOINHIBIT 5400CF |

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Obligations of Quarry Operators

From Approvals to Operations

by Environmental Management Authority

The Final Country Report of the Land Degradation Neutrality Target, 2020 (Trinidad and Tobago) identifies land degradation from quarrying or surface mining as having a high impact on the physical, natural, and social environment. Quarry operations provide materials for the construction, industrial, and agricultural sectors, generate revenue through royalties and provide livelihood opportunities for fence line communities. Conversely, if these operations are unsustainable, they would result in long-term, negative environmental impacts, particularly where operators flout their statutory requirements under the Environmental Management Act Chapter 35:05 (EM Act) and the Minerals Act Chapter 61:03 (Minerals Act).

The Environmental Management Authority (EMA) is mandated to develop and implement laws, policies and programmes to ensure the conservation and wise use of the environment for present and future generations and enhance the quality of life. The Certificate of Environmental Clearance (CEC) Rules and CEC (Designated Activities) Order (as amended) provide a framework, inclusive of statutory timelines, to assess both the potential benefits and negative environmental impacts associated with the establishment, modification, expansion, decommissioning or abandonment of an Activity listed in the CEC (Designated Activities) Order. Quarrying falls under designated activity 23.



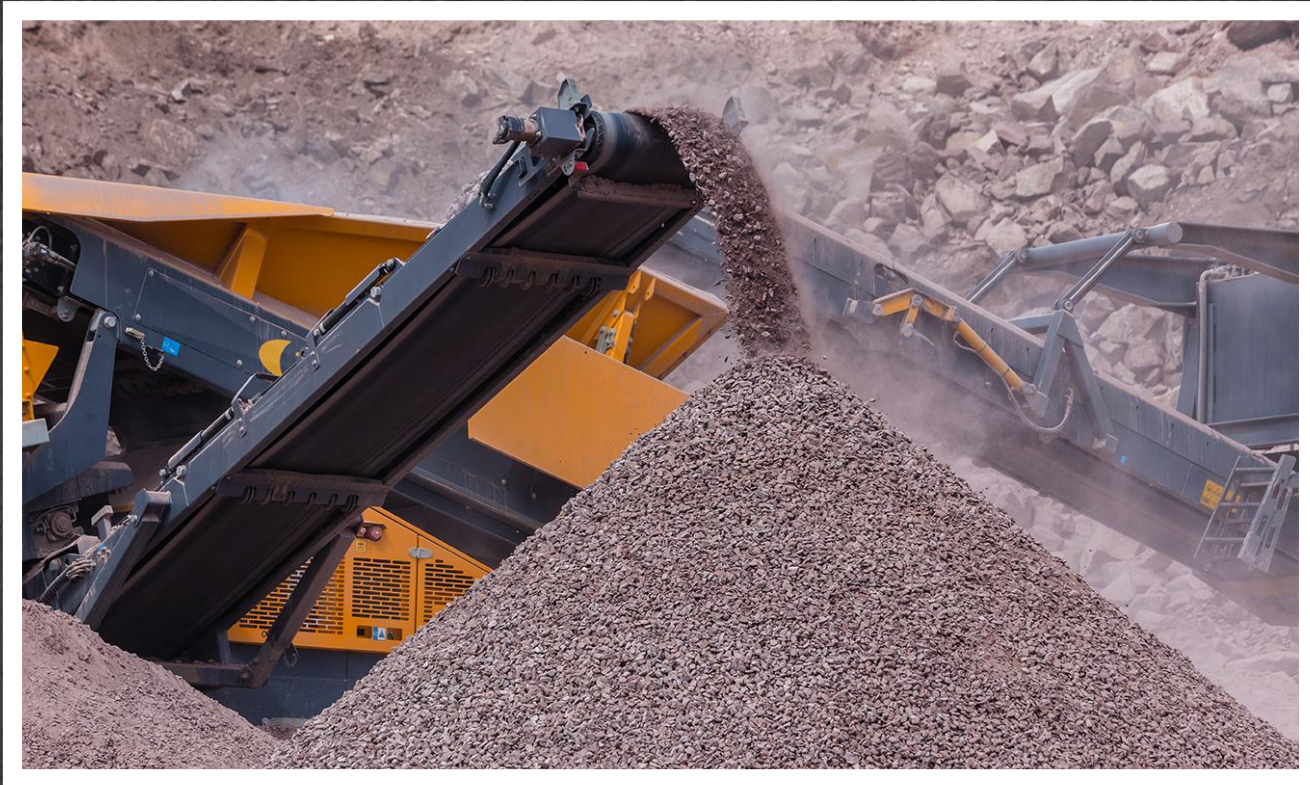
Quarrying

Quarrying or surface mining is the process of removing rock, sand, gravel, or other minerals (Institute of Quarrying, 2023) from the surface to produce construction materials (Jiskani, 2017). Quarrying involves preparing a Mine Design Plan, acquiring regulatory/statutory approvals, site preparation for extraction, dewatering (where applicable) and rehabilitation.

Table 1: Typical components of quarry sites (Adapted from Safe Quarry Guidelines Regulations 2020, Ireland)

| Buffers from receptors | Surface mineral workings and excavations | Tips (both in and outside the site boundary) |
|---|--|--|
| Storage of minerals (including overburden and stockpiles) | Site drainage inclusive of Ponds/Lagoons (natural or man-made) | Processing and sale areas (i.e. crushing, screening, washing, drying, bagging and loading areas) |
| Quarry access roadways | Buildings and structures (security, administrative, storage and convenience) | Rehabilitated or reclamation areas |





Impacts of unsustainable quarrying

Unsustainable quarrying practices significantly impact biodiversity, surface and groundwater resources and aesthetics. Climate-related impacts are also exacerbated as the felling of forests disturbs soils, generates emissions, releasing sequestered Soil Organic Carbon (SOC). Additionally, carbon dioxide from internal combustion engines and social impacts including conflict; loss of traditional livelihood opportunities, formal and vernacular heritage sites and hunting grounds arise because of this unsustainable practice.

Table 2: Environmental Impacts of Mining (adapted from Rentier and Cammeraat, 2022)

| Physical | Biological | Social |
|--|---|---|
| <ul style="list-style-type: none"> • Increased erosion • Altered terrain and drainage systems • Reduced air quality • Increased noise (and vibrations if blasting is involved) • Reduced surface and groundwater quantity and quality • Soil contamination | <ul style="list-style-type: none"> • Habitat loss and fragmentation • Smothering of aquatic microorganisms • Reduced respiration and photosynthesis • Noise and light pollution | <ul style="list-style-type: none"> • Damage to utilities and infrastructure • Change of land use • Loss of traditional livelihoods • Reduced agricultural yields • Loss of formal and vernacular heritage sites • Diminished aesthetics |

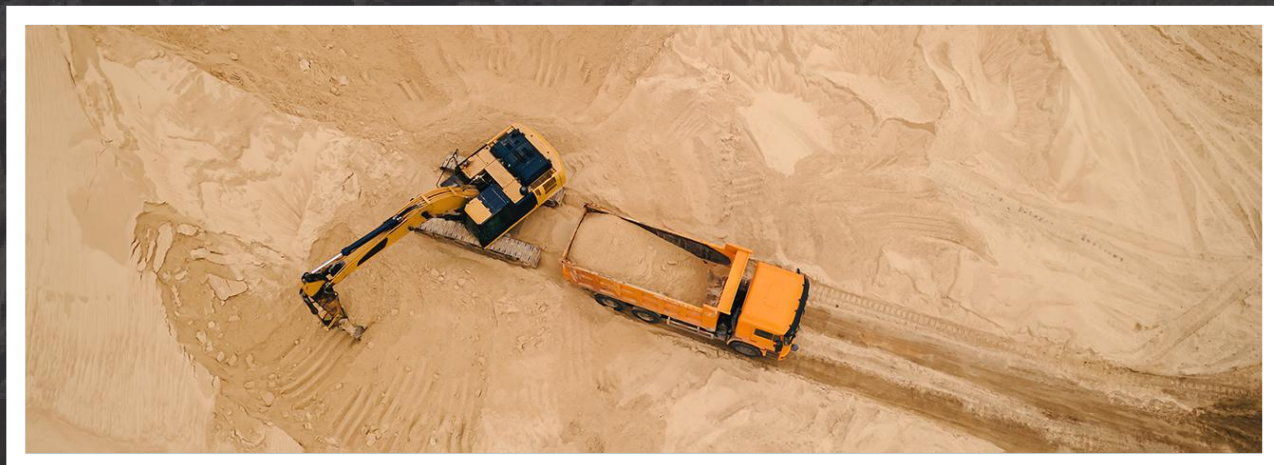
The CEC Application Process

The CEC application process allows the EMA to assess potential impacts on the receiving environment, which may arise out of proposed new or significantly modified activities. Activities or projects which require a CEC are outlined in the CEC (Designated Activities) Order, (as amended). The CEC is a permit certifying the environmental acceptability of the proposed activity or project, provided that all conditions contained in the CEC are fulfilled. There are forty-four (44) Designated Activities (DAs) which require a CEC.

Section 35(2) of the EM Act asserts that no person shall proceed with any activity which the Minister has designated as requiring a Certificate (CEC) unless such person applies for and receives a Certificate. Quarrying or surface mining is listed as Activity 23 of the (Designated Activities) Order. As such, a CEC certifying the environmental acceptability of a proposed activity including mitigation measures and monitoring requirements throughout all phases of the activity must be acquired.

Table 3: Applicable Designated Activity for the mining and processing of minerals

| | Activity | Definition |
|----|--|--|
| 23 | Establishment of a facility for non-metallic mining and processing | The establishment, modification, expansion, decommissioning or abandonment (inclusive of associated works) of a facility for the mining, processing or storage of clay, andesite, porcellanite, limestone, oil sand, sand, gravel or other non-metallic minerals |



Requirements for the CEC application process: Before and during Operations

1. Tenure, statutory approvals and advocacy

- a. Evidence of tenure including a lease from the Commissioner of State Lands where activity is on state lands.
- b. Evidence of engaging the Ministry of Agriculture Land and Fisheries (MALF), Ministry of Energy and Energy Industries (MEEI), Town and Country Planning Division (TCPD) and the Water and Sewerage Authority (WASA), where water abstraction is necessary, must be presented.
- c. Documentation must be provided even to the effect that no objection or approval is required from the aforementioned regulatory agencies.
- d. Meaningful stakeholder engagement, a facility provided for in the EM Act, also allows for a fit-for-purpose tool to engage stakeholders on the proposed project.

2. Project description

A project description incorporating the three (3) pillars of sustainability (social, environmental, and economic) is critical to communicating the project concept. The project description should provide details on the social (demographic data, natural assets and livelihood opportunities), natural (flora, fauna and conservation sites), and physical (geology, topography, climate) assets. It is also critical to provide an appreciation of the nature and location of the facility. Information on types of machinery, method, rate of extraction and proposed depth (in metres) of mining, in addition to modes or methods of extraction, processing, storage and transportation of final product(s) are further critical considerations.

3. Conceptual scope of works, location, and site plan

Quarries occupy spatial areas whose location, orientation and components must be presented to permit a rigorous assessment of potential impacts. Maps depicting Global Positioning System (GPS) coordinates, aerial images and cadastral (ward) sheets can be used to present this information. Conceptual site plans depicting property boundaries, sediment and stormwater management plans, site constructs and mining and processing areas, as well as areas designated for conservation must also be provided.

4. Baseline environment

Once the proposed location of a quarry has been determined, characterising the immediate receiving environment, or conducting a baseline assessment of the existing physical (i.e. air quality, noise, surface and groundwater water quality), biological (flora and fauna) and socio-cultural environment must be undertaken. Additionally, an assessment of potential significant negative impacts on the physical, and biological components of the environment and mitigation measures to attenuate these potential impacts must be provided.



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5. Previous site uses or history

Indiscriminate waste disposal continues to impact all development sectors in Trinidad and Tobago. To minimise the exposure and migration of contaminants off-site, prospective operators should indicate whether the proposed operational area was previously utilised for dumping, burial, or a site for the remediation of hazardous or non-hazardous wastes. The extent of the contamination, the period over which the site was used for disposal and how the site was remediated must be indicated.

6. Utilities and physical and social infrastructure

Physical (roads, drains) and social (emergency response and medical facilities) infrastructure and utilities (telecommunications, electricity, and potable water) may be damaged or overwhelmed, diminishing the quality of service to existing residents and occupiers of the area. Operators should include repair and refurbishment of utilities and infrastructure, as well as health and safety contingencies, to reduce to potential for accidents and injury to staff and members of the public.

7. Heritage and archaeological and paleontological assets

Formal and vernacular heritage sites (structures and features built by 'ordinary' people, using local ideas and methods passed down within families and communities) as well as archaeological and paleontological assets must be documented and conserved. Deeply buried assets typically cannot be identified through superficial surveys. Appreciating depositional trends and recording paleo-environmental evidence therefore requires a collaborative approach. Engaging key stakeholders including the National Trust of Trinidad and Tobago, MEEI, community and Civil Society Organisations (CSOs), and academic and professional groups such as the University of the West Indies (UWI) and the Geological Society of Trinidad and Tobago (GSTT), are among the stakeholders that ideally should be engaged to ensure appropriate conservation methods are implemented.

Post CEC - Rehabilitation Concept

Extraction and Rehabilitation must go hand in hand. To ensure rehabilitation commences and has a high probability of success, the rehabilitation plan must:

- Be consistent with land-use policy;
- Have clear objectives;
- Be cognizant of regulatory and advisory requirements;
- Account for its Greenhouse Gas (GHG) emissions;
- Incorporate the concept and pillars of sustainability (social, economic and environmental);
- Provides a framework for operating the facility in a technical and environmentally sound manner.

Table 4: Elements that should be considered in the rehabilitation concept.

| Consideration | Intervention |
|---------------------------------|---|
| Increased Carbon Footprint (CF) | <p>Life Cycle Analysis (LCA). Provides a protocol for GHG accounting within the operational boundary of a facility using three (3) scopes:</p> <ol style="list-style-type: none"> 1. Direct emissions from activities owned or controlled by the organization (e.g., vehicles, generators, pumps and GHG leakage from cooling systems); 2. Indirect emissions associated with the purchase of utilities; 3. Indirect emissions from outside the geographic area of the site. (e.g. transport, business travel, hotel stay, material consumption, and waste). |
| Statutory Requirements | <p>Legal compliance is intrinsic to quarry rehabilitation. The plan’s emphasis, should not be legal compliance it must instead, serve as a tool which prescribes indicators.</p> |
| Public Health and Safety | <p>Precautions should be taken to minimise the risk of accidents and control access. Safety must also consider restricting access to ponds and excavation, risk of slope failure, damage to utilities and infrastructure, stockpiles and the hydrological regime.</p> |
| Stakeholder Engagement | <p>Stakeholder engagement is enshrined in the EMA Act and provides an opportunity for the public to be involved at all stages of the development process. Operators should see the benefits of the participatory process to reduce conflict and leverage perceptions, experience, culture, and norms.</p> |
| Baseline Assessment | <p>A baseline assessment forms part of a CEC Application which enables impact assessment and mitigation. The assessment must consider the natural/biological, physical, and social environment, as well as safety, aesthetics, heritage, archaeological and paleontological assets.</p> |
| Monitoring | <p>Monitoring should be iterative, inclusive of corrective measures. Effective monitoring strategies include measurable indicators to ensure documentary evidence of achieving monitoring requirements is maintained.</p> |



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TTCA Welcomes New Member



T&Z Home Improvement

T&Z Marketing Limited, operating as T&Z Home Improvement, was founded in 1986 by Mr. and Mrs. Trevor Joseph. Since then T&Z has evolved into a prominent player in the home improvement sector. The company boasts of their proficient staff and expansive facilities, which includes four retail showrooms strategically located in Marabella, Penal, El Dorado, and Munroe Road (Main Warehouse and Showroom).

The company's growth prompted the establishment of a Projects Division, enhancing customer service for contractors, architects, and homeowners. In addition, they are recognized as a preferred supplier for both public and private housing and commercial projects. T&Z has developed direct relationships with international manufacturers, solidifying its reputation as a large-scale supplier.

T&Z supplies a diverse range of products including:

Pittsburgh Paints by PPG Brazil - Imported directly from PPG's Brazilian production facility, these architectural paints boast the longest warranty (up to 10 years) at the lowest cost per square foot, concentrated acrylic silicone formula, odourless, antibacterial properties, environmental friendliness and unlimited colours.

Floorings – T&Z is regarded as one of the largest stockist of tiles which includes ceramic and porcelain tiles as well as natural slate and granite. They also cater to the rising demand for PVC and **SPC Vinyl wood-like flooring**

Sanitary wares – As a leading supplier in sanitary wares, T&Z provides an array of bathroom fixtures such as toilets, vanities, shower enclosures, faucets, hydro massage tubs, saunas, hot tubs, and so much more all of which carry full warranties and are elegantly displayed at all retail showrooms.

Roofing - T&Z offers Ceramic roofing tiles, featuring Wave and Premier models for efficiency and elegance with over 100 years warranty, the market's newest budget-friendly option.

Doors and Kitchens - T&Z pioneers in steel security exterior doors, H.D.F. semi-solid doors, melamine luxury interior doors, bi-fold panel doors, and introduces Guyanese Hardwood Kitchen cupboards all with additional specialties, with a focus on security, style and luxury.

With almost 38 years in the industry, T&Z Home Improvement has become a household name, emphasizing strong customer relationships, professional advice, and hassle-free service. The company's commitment to quality is evident in its involvement in both residential and commercial ventures.

T&Z invites further inquiries or clarifications and expresses readiness for a comprehensive presentation to showcase their commitment to successful home improvement and construction projects.

Contact Information - 1 (868) 672-1834 or
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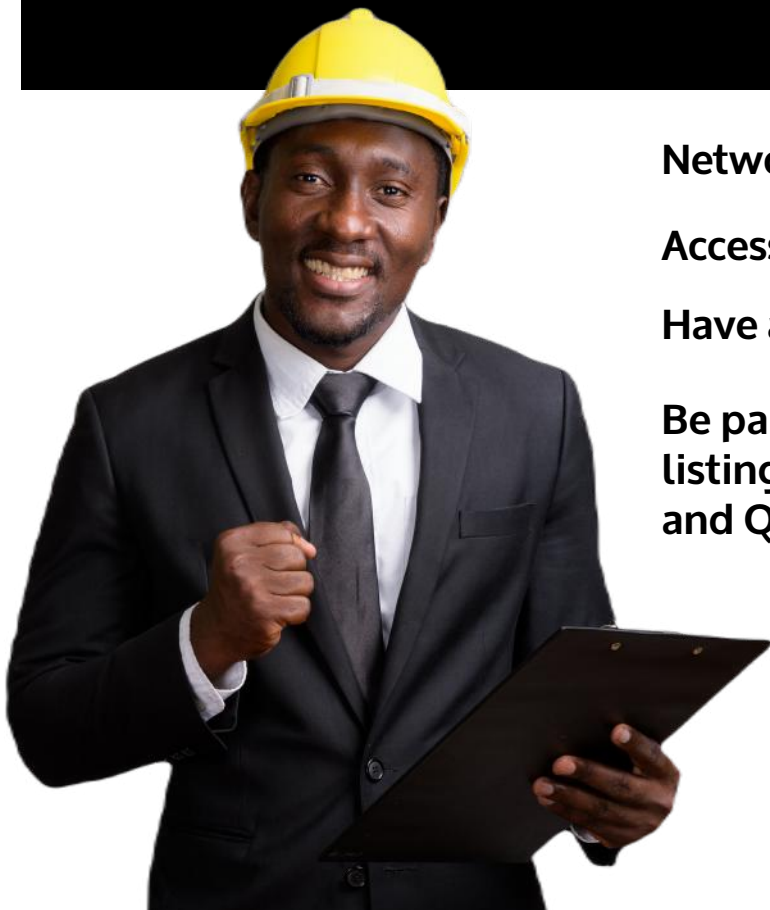
- ABEL Building Solutions
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The logo for the Trinidad and Tobago Contractors Association (TTCA) is displayed in a large, white, stylized font. The background of the top half of the advertisement features a silhouette of a person in a suit, with a bright sun or light source behind them, and a construction site with cranes and scaffolding in the distance.

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