

Transforming the country's public transportation

Malaysian engineers play a pivotal role in the country's first underground MRT project

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LIKE doctors on standby, three MMC Gamuda engineers - Ahmad Zaifliqhar Hafiz, Yusni Shahadan and Noor Affida Raffika Mohamad Nazari - are required to monitor the MRT project as if providing 24-hour care for a patient.

As demanding as it may sound, delving into each of their personal experiences while working with MMC Gamuda unveils the passion and fulfilment they have for their designated roles.

MASTER OF CONSOLIDATION

Precision and accuracy is required to control and navigate a Tunnel Boring Machine (TBM) and to achieve this, a reliable navigation system is needed.

For the layman, the TBM could be described as a rabbit burrowing underground - except the rabbit burrow houses only the rabbit - while the tunnel bored by the TBM is 'home' to the MRT lines that would ferry millions of commuters daily when it is in operation.

A survey manager who has been with MMC Gamuda for 21 years, Ahmad Zaifliqhar Hafiz's responsibilities now include managing the navigation of the TBM.

To fit a machine that massive through a circular shaft, every coordinate calculation must be made with precision, otherwise it risks loss of funds, extra costs incurred or worse, an accident occurring underground.

Being given the opportunity to work on the MRT project, the 45-year-old Teluk Intan-born said this had become a highlight of his career, as he was required to meet very high standards.

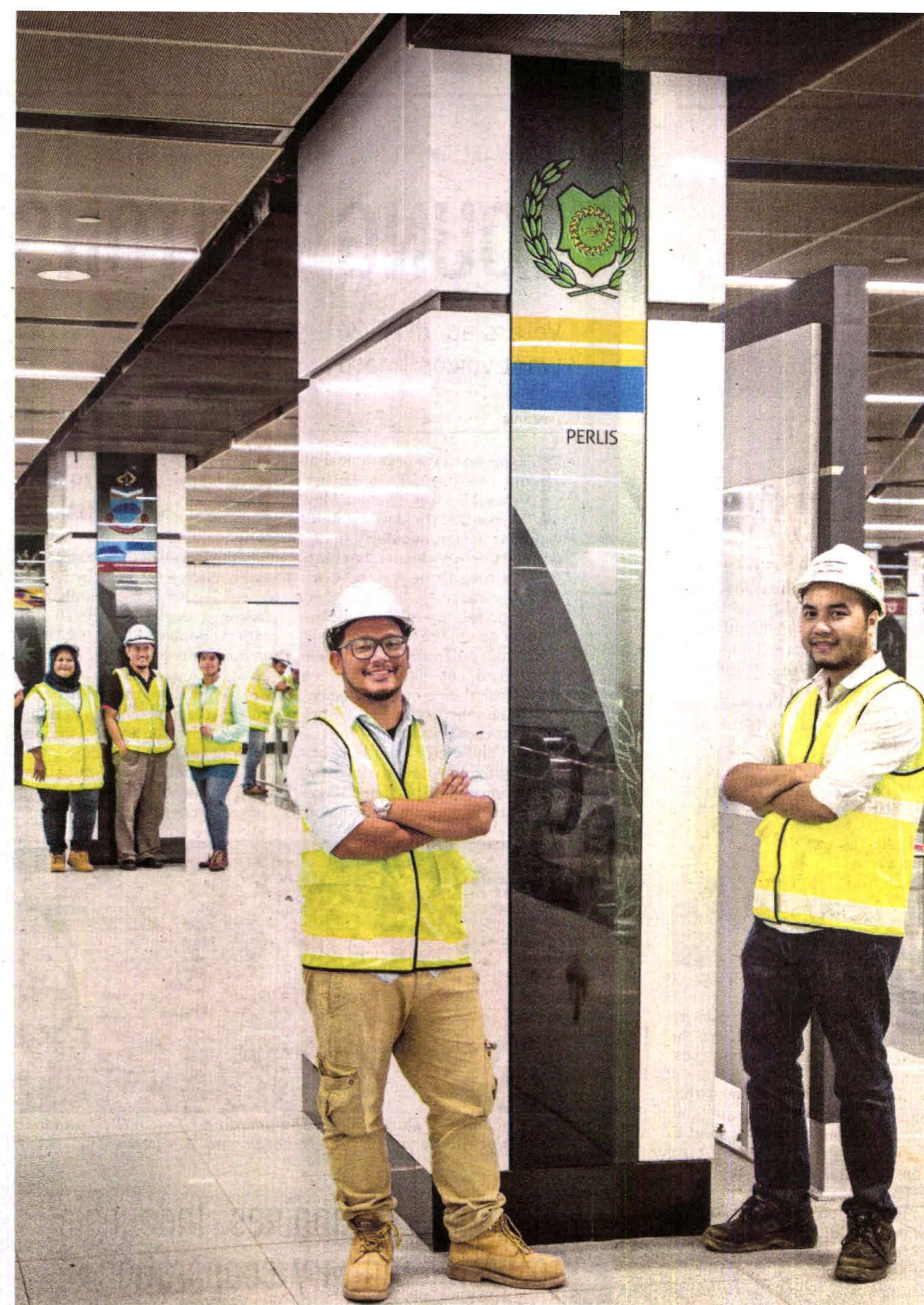
"One of the challenges of my job is to ensure that the tunnel boring coordinates are accurate and based on the latest drawing revision.

"Because these drawings come from various sources, my team and I need to consolidate and be very sure that the calculations are accurate.

"We deal with very expensive equipment and there is no room for inaccuracy or carelessness. We are required to be very focused and alert at all times," he said.

"I set a very high goal for myself and my focus is to achieve the target I've set. This drives me to go beyond my comfort zone."

NOOR AFFIDA RAFFIKA MOHAMAD NAZARI
Section head



The beaming and proud engineers in the MRT Merdeka underground station where every state flag is featured on each pillar.

While some may think that boring a tunnel is just another excavating exercise, Ahmad Zaifliqhar explains that there are many other factors that need to be considered.

"Apart from navigation accuracy, there are risks that need to be managed with water-tight measures.

"When that occurs, the TBM must stop and we would then need to recalculate the process.

"It is a very long process where 1.4km takes about six months, for instance boring from Bukit Semantan to the National Museum. It is a 24-hour operation, it doesn't stop," he said.

He added that his experience with building highways was very different as that involved work done above ground while working on the MRT requires him

to adapt to working underground.

"It is a very different environment underground. The risks are different; the kind of chemical reaction from the soil and ground is different.

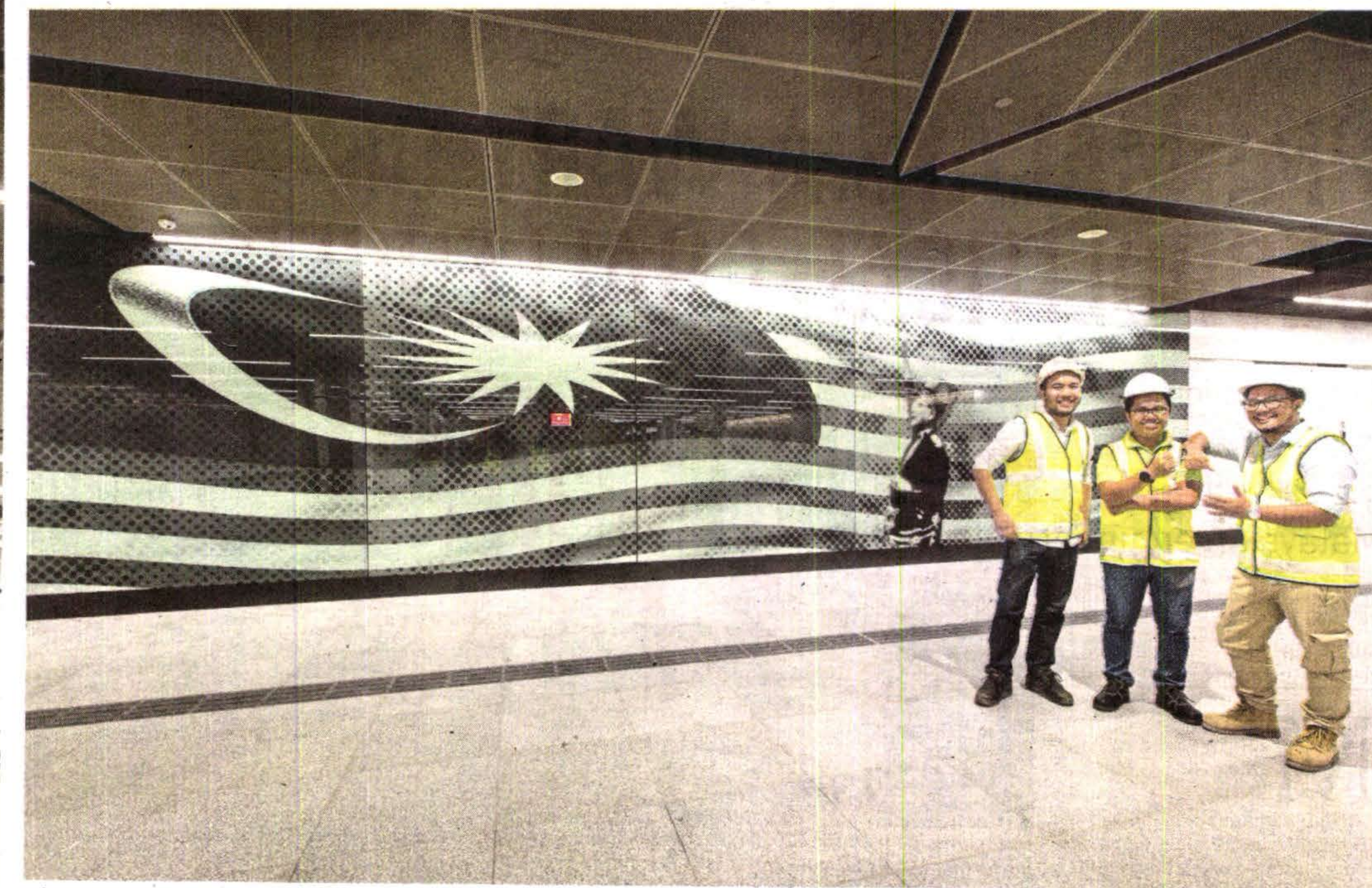
"I really respect those who operate the TBM as the nature of work in confined space below the ground is highly challenging.

"Imagine being me. My responsibilities include the safety of my survey team, knowing that a mistake would mean wasting their efforts after boring for hours," he added.

Apart from managing the navigation of the TBM, Ahmad Zaifliqhar also handles internal training to help improve team capabilities and encourage adaptation for advancement in this technology.

"A lot of things are done differently when building starts underground. Although I have been in the construction industry for 28 years, this is a whole new experience for me."

YUSNI SHAHADAN
Construction manager



The underground team standing at two feature walls in the MRT Merdeka station which feature detailing of the Rukun Negara and Jalur Gemilang.

BRINGING PEOPLE TOGETHER

While everyone else is asleep, MMC Gamuda construction manager, Yusni Shahadan, 51, has to clear the vicinity of the Merdeka Station of construction works when the town wakes up in the morning.

The areas surrounding the Merdeka Station must be returned to its original state without the construction of the MRT getting in the way of daily life - especially in the morning when the area comes alive with traffic.

Yusni's role encompasses everything from civil engineering works, mechanical and electrical, liaising with contractors, as well as dealing with authorities and stakeholders, including schools surrounding the station.

"We are doing underground work in the city near three schools, which means the Merdeka Station vicinity is always crowded from 7am in the morning.

"We need to plan our work around peak hours during the day to avoid traffic congestion or construction works becoming a hazard to vehicles that pass through the area.

"We also need to keep in mind the sensitivities involved when working on a heritage area like Stadium Merdeka, where the land owner is involved. My job is to keep everything as peaceful as possible," he said.

The greater challenge however, according to Yusni, is managing people.

"Each day before work starts, I have to ensure that everyone knows what needs to be done, what are their respective responsibilities and whether everyone know what they are required to do.

"At any one time, there are 1,000 workers on site. Everyone needs to know their responsibilities in order to ensure

smooth operation and this contributes to meeting the project deadlines," he said.

He further elaborated that it is a whole new world of considerations when digging work is done nearly 100 feet underground.

"We need to look after building structures in the surroundings, and with underground works there is a lot of groundwater and we need to find ways to discharge water from 100 feet below.

"You cannot just discharge the water anywhere and anytime. There are safety regulations that we need to follow and therefore, we can only do it at a certain permitted time," he said.

Explaining that building the underground rail is a bottom-up construction process, safety and health are paramount.

"For instance, the MRT project does not use conventional scaffolding, it uses a proprietary system instead.

"A lot of things are done differently when building starts underground.

"Although I have been in the construction industry for 28 years, this is a whole new experience for me. I believe that one's life is a learning process and I am glad that I have been given this opportunity to work on this project as a pioneer," he said.

DREAM COME TRUE

At a very young age, Noor Affida Raffika Mohamad Nazari, who is now 29, decided that she wanted to become an engineer.

Then, she did not know much about the types of engineering she could do - she just knew that her end goal was to become an engineer regardless of the field.

Today, the Gamuda scholar who studied at Universiti Tun Hussein Onn

Malaysia in Batu Pahat not only managed to fulfill her dream of becoming an engineer, she is one of the youngest engineers to manage the project that is changing the landscape of Malaysia's infrastructure.

Noor Affida, who is an underground station section head, joined MMC Gamuda five years ago as a site engineer and was first deployed at the Maluri Station during the construction of MRT Line 1.

She is currently serving as KLCC East underground station's section head since the middle of last year.

"Although I am an engineer, I still needed to equip myself with leadership and soft skills," she said.

She is often asked if there were difficulties in handling male staff to which Noor Affida said she never saw it as a challenge.

"I don't think much about it because I believe it is our performance that matters at the end of the day. There is nothing a male or female staff does that garners different qualities or achievements.

"I set a very high goal for myself and my focus is to achieve the target I've set. This drives me to go beyond my comfort zone," she said.

Working with MMC Gamuda building MRTs is not just a job for Noor Affida. For her, it is a very surreal journey.

"How often do you get to tell your friends that you were actually part of such a mega project which is set to change the course of public transportation in the country?"

"It still feels very surreal for me. I feel very humbled by this experience and I sometimes still ask myself, 'Was I really a part of this?' just to confirm this isn't all a dream," she added.



"We deal with very expensive equipment and there is no room for inaccuracy or carelessness. We are required to be very focused and alert at all times"

AHMAD ZAIFLIQHAR HAFIZ
Survey manager

