How Can Robots Help With Material Testing?

Dubai Municipality has revealed that it is using robots to enhance the accuracy and increase the efficiency of its material testing process. Dubai Central Laboratory, which is tasked with carrying out such tests, is deploying robots equipped with X-rays, AI capabilities and other advanced technologies in order to upgrade its modus operandi.

What with recent scandals of flammable cladding and RAAC controversies, residents of the UK are all too familiar with the importance of testing the materials used in construction projects. Those concerns are similarly paramount in the UAE and, thanks to the help of these ingenious robots, Dubai Municipality has become a world-leading name in the field.

Rapid acceleration

The robots used by the Dubai Central Laboratory are capable of scanning the chemical composition of a sample via X-ray, to ascertain that it meets the relevant regulations and requirements. Previously, these kinds of rigorous testing protocols would take around four days to complete – but the wonders of X-ray technology mean that the same results can now be achieved in just eight minutes.

That has helped the Laboratory to enhance its throughput of samples tested on a daily basis by a whopping 650%. What's more, the fact that the testing equipment is linked to a smart platform means that the results can be uploaded and electronically sent to all interested parties, including customers, contractors and consultants. This facilitates the completion of projects on time and within their budget, which is good for the entire construction sector.

Precision accuracy

Of course, when it comes to a subject as delicate as the safety of construction materials, it's of paramount importance that all testing meets the relevant standards. Thankfully, the robot-assisted methods in use at Dubai Central Laboratory provide the highest levels of accuracy in their analysis, ensuring that all protocols are carried out and safeguards are satisfied.

Cement checks are particularly relevant when mixing concrete, since the outcome of the tests will determine which materials are used in building edifices around the country. Not only do they have a direct impact on the immediate safety of those inhabiting the buildings today, but they also influence how resilient and reliable the structures will be in the future.

A futuristic operation

The use of the robots is just the latest example of the forward-thinking nature of Dubai Municipality when it comes to optimising its operations and futureproofing the urban

infrastructure of the emirate. Hind Mahmoud Ahmed, who is the Acting Director of the Dubai Central Laboratory, said similar innovations are likely to be introduced in the coming years.

“This is part of Dubai Municipality's efforts in adopting digital and competitive business systems, applying pioneering AI technologies, and adopting digital solutions that enhance the quality of services and streamline operation,” she told the Khaleej Times in an interview earlier this year. Watch this space for more developments coming soon.