The Crystal Palace.
(Source: uribarel via Canva.com)

HOW TO CONSTRUCT A 'STEEL' OF A BUILDING

Efficient and economical.

Would you ever use these two words to describe the awesome, gargantuan task of building one of the wonders of the ancient world – the Great Pyramids of Giza? Probably not. But read on, and you will discover how these ancient Egyptians could teach us a thing or two about saving time and costs.

There is nothing new under the sun, they say. Especially in the business of building. Little did the Egyptians know over four thousand and six hundred years ago when they were building their pyramids that they would also be sowing the seed of an idea that would impact current modern construction methods.

The idea was simple: the building blocks were planned and manufactured separately first before the monumental task of heaving these blocks into place.

The smaller blocks were of course, easier to be cut and carved to fit the sizes required. In this way, it would make it a more manageable affair to transport the blocks. How they did it is of course, another story altogether.

But let's focus on the fact that they somehow, you might say – 'pre-fabricate' the building blocks before heaving them to the construction site and to their properly fitted locations on the pyramid.

The ancient Egyptians, you could say, are the predecessors of the modern industrialized building system (IBS).

A STEAL OF AN IDEA

It was only in 1851, during the Industrial Revolution that a major shift in construction occurred with the building of the Crystal Palace using the IBS method, which took only four months to complete.

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Just what exactly is the IBS, you might ask.

If you answer: "It's a 'steel' of an idea", you are right. There's just something intrinsically economical within this method of construction, indeed.

It was Mr Charles Bage, a liquor merchant who contributed his knowledge of the structural properties iron towards the construction of one of the most important buildings in modern architectural history in 1797 - the Ditherington Flax Mill.

It came to be known as the "grandfather of skyscrapers despite being only five-storeys, being the first cast-iron framed building in the world. Later christened as the Shrewsbury Flaxmill Maltings due to the factory's subsequent function, its importance was finally officially recognized in the 1950s with its stature as a Grade I building when its Main Mill was restored.

IBS BENEFITS IN MALAYSIA

Pre-casting the steel framework is very much a part of the IBS method, which is defined as a construction technique where "components are manufactured in a controlled environment either on or off-site. They are then transported, positioned, and assembled into a structure with the least of additional site work."

The Malaysian building industry has also experienced its own journey moving towards the usage of IBS ever since the Public Works Department (PWD) sent architects to several European countries to explore this concept of development in 1963.

Subsequently, official Malaysian representatives were also sent to Germany, Denmark and France to learn about their construction systems. IBS has been further encouraged by the Construction Industry Development Board (CIDB) since 2003 to advance the level of competitiveness and efficiency of the construction industry.

How else if not through the IBS method that Malaysia's iconic Petronas Twin Towers, Bukit Jalil Sports Complex and the Malaysian Light Rail Transit infrastructures were built?

The IBS system of pre-fabrication various parts afford several excellent advantages for modern building over the traditional wet construction method, which meant higher costs and slower production.

For one, IBS creates cleaner, neater and safer construction sites due to its principles of systematic assembly. This efficiency enables cost reduction for the entire project, minimizing wastages.

With the time saved due to the pre-construction phase of production, the entire project has also fewer chances of being affected by adverse weather conditions while being set in motion towards a speedier completion time.

What more can we add to this fabulous concept long utilized in nations like Finland, Sweden, Germany, Japan and Singapore that makes constructions cost and time-efficient?

LIGHTWEIGHT DURABILITY'S EDGE

CSC Steel Malaysia, a Taiwanese-owned company with its forte in steel-producing technology has pioneered galvanized steel innovations such as realzinc™ and realzinc™enhance with a wider thickness range of 0.18mm to 2.5mm. This enhanced thickness offers the most comprehensive protection against corrosion with a wider zinc protection range between Z080 (80g/m^2) and Z400 (400g/m^2).

Compared to the conventional method, it is advantageous to use lightweight steel in the IBS method such as the having galvanized steel wall structures like the realzinc™ series, which is easy to fabricate and assemble apart from its optimum performance in strength.

What's more, the realzinc™ series wall frame structures are also more favourable in the instances when it comes into contact with alkaline substances such as cement as it is highly resistant to corrosion. Its efficacy against corrosive alkali has been proven via cement dipping tests, establishing its compatibility of use and suitability of support in steel framework designs.

With the movement towards construction industrialization being a worldwide agenda and with IBS having been successfully been adopted in developed countries, it is timely for Malaysia to bring the industry leaps and bounds forward with the right, raw resources at hand.

Simply, CSC Malaysia is committed to move in synchrony with revolutionizing better construction methods through contributing its lightweight innovation that can result in substantial impact on expenditure reducing efforts and longer lasting structures. Much like the method first inspired by the ancient pyramids.

Come explore how CSC Steel Malaysia's realzinc™ series can enhance your construction projects.

For more details, please scan this code: