Revolutionising the Building Repair Industry With Nuvoco

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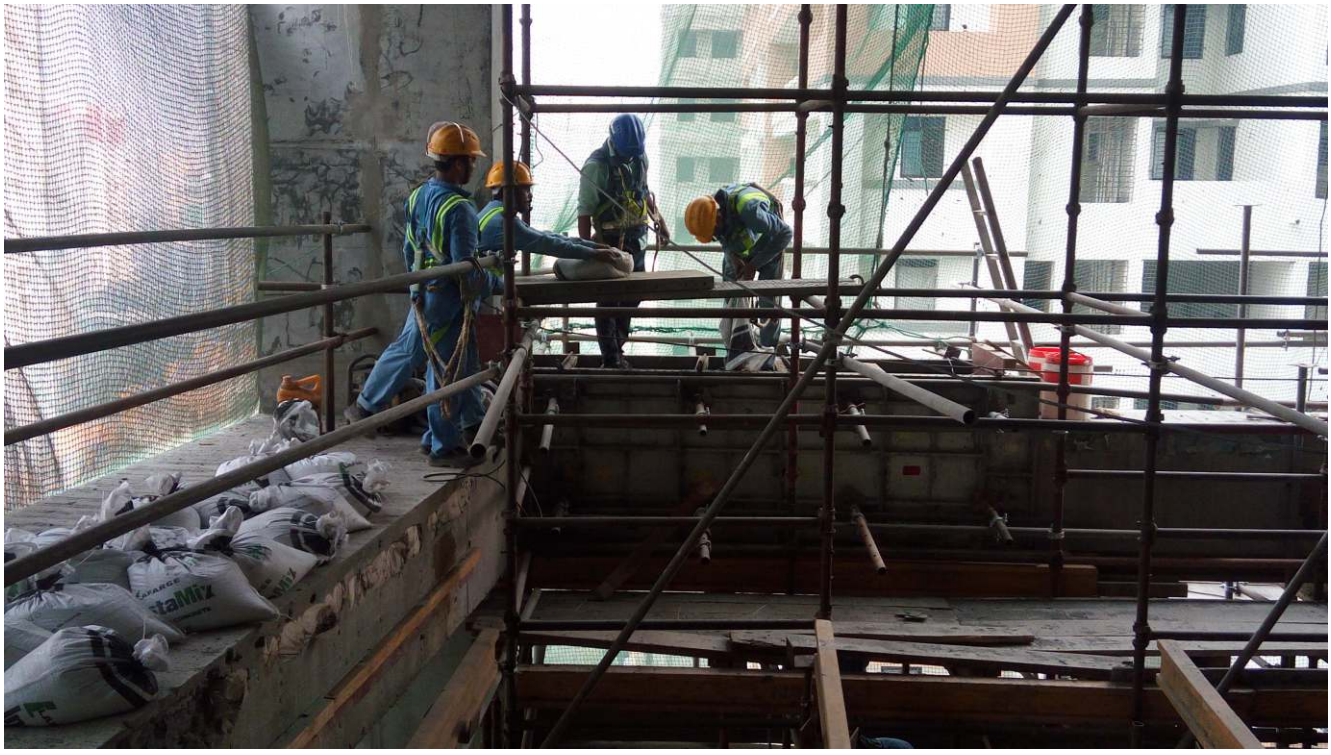
Each building structure has a life, which depends on the specifications adopted, the materials used, and the technique of construction and so on. As a result, over time, buildings and monuments exhibit signs of distress, owing to age, hostile natural environment, pollution and more, besides the misuse of the structures. Regular corrosion, wear and tear, errors in the design or construction stage, faults and cracks during the servicing stage can also leave vulnerabilities in buildings which grow pronounced over time weakening the structures severely and affecting the buildings' integrity. They need to be strengthened or repaired as and when necessary, to ensure their safety and continued longevity.

The critical importance of the strengthening and repair of buildings and infrastructure comes from the estimate that in most countries, the repair and retrofitting costs incurred on structures account for almost half the total annual expenditure on construction activities. For instance, the average annual cost for repairs in the U.S. is roughly $20 billion dollars, which equates to roughly 90,000 cores and a holistic figure is not yet available in India.

As a result, several methods of building repair are used today, aided by advancements in technology. This includes electrochemical techniques and corrosion inhibitor methods, surface treatments, patching and injection sealing of cracks and strengthening with concrete, carbon fibre, externally bonded steel plates etc. In essence, cement and cement based products are, almost always, used in repair and retrofitting purposes. Conventionally, dry mix products supplied by the construction chemicals supplier like dry micro concrete, polymer modified mortar, dry grouts, and site mix concrete are used for the purpose. The dry materials are purchased from the vendor and stacked at the site, where the water and other aggregates are manually mixed together and used for repairs. Not only are these products expensive, availability of space for stacking them on the site is often a concern. In addition to that, optimisation based on requirements and application, in terms of the grade of the product and mechanical properties, like elasticity and flexural strength, is difficult to obtain, as they are factory produced standard products. There is also a severe lack of adequate knowledge of the products and how to use them, along with a shortage of skilled labour for the mixing, which compromises the dry mix repair product while using at site and adversely affects the repaired structure. Also the low resistance of dry products to chloride, sulphate and carbonation attack is a big concern. So is the use of water with a high concentration of salts and sulphates. Thus repaired structures end up needing further repairs in very short periods of time, when exposed to unfavourable conditions and hostile environments.

Location of Micro Concrete Essar Port



Instamix Microne - M80 Samsung Mumbai

Leverage the expertise and mechanisation of Ready Mix Concrete to produce and deliver high quality repair products and utilising cutting edge innovation to service local needs the ready mix concrete industry is able to provide solution which has proven to be a boon for the repair and retrofitting industry. This would help ensure the availability of quality durable repair products for crucial structures, irrespective of their size and volume.

Additionally, this would help in the delivery of repair products based on the site needs and customer centric optimisation is also possible. It would also help address the quality concerns associated with dry repair products, and help avoid site mixing and also eliminating the need for dry material stacking at site. Altogether this would give rise to high quality durable repair products that help extend the life of the structures.

In light of this, a range of innovative and revolutionary products for building repair and retrofitting was launched by Nuvoco, under its line of ready-mix-concrete products (RMX). The Instamix Bag Concrete is, in fact the very first wet mix concrete to be delivered in bags, which completely eliminates the need for storage on site. Driving cutting edge innovation in material chemistry and rheology, Nuvoco conducted a study of the local needs and small volume needs to design the product. As a result, not only does it guarantee quality assurance and sustainable construction to the repair space, but it also avoids the wastage of any raw material and helps in achieving better utilisation of manpower, thereby reducing labour requirements by 30 to 40%. Additionally, the self-compacting nature of the wet mix Bag Concrete is ideal for structural concrete repairs. Since the product comes ready-to-use, one needs to simply open the bag and pour the mix, eliminating the need for storing or mixing cement with the sand and aggregates at site.

Wet Concrete

Essar Port Complexe Column Base

The Instamix Bag Mortar, on the other hand, is a ready to use Mortar for plastering or brick-laying supplied in ready-to-use bags. Once the mix has been delivered, it can be used within eight hours. The polymer modified Bag Mortar is ideal for repair purposes and fortified with fibre and other durability enhancing additives to improve water repulsion and lower capillary absorption. As a result, it offers excellent coverage as well, leaving no gaps for water to enter, unlike its alternatives. There is no need to sieve the sand and mix it manually at the site, as its ready-to-use from the bag itself, reducing the amount of time required for the repair process, as a whole.

However, what really stands out from Nuvoco's extensive repertoire of innovative construction products, is the non shrink - wet ready-to-use Instamix Microne. Having grown hugely popular since its launch, wet ready-to-use Instamix Microne is the result of the incredible disruptive innovation in the repair segment, which is conventionally dominated by dry mix products. Taking site repair elements into consideration, the aggregates used vary in size from 4.75mm to 10mm. One of the biggest reasons for its popularity is that it is a non-shrink product which guarantees excellent plastic and hardened properties and is extremely durable compared to the dry mix products available in the same range. Being a free flowing mix, it can be used to fill all kinds of difficult to reach areas and boasts of 30 % to 40% more chloride resistance which makes it ideal for all kinds of aggressive environments. It also offers 50% more adhesion strength compared to conventional products and is available in Grades of M40, M60, and M80, with a working life of five hours after reaching the site.

Instamix Microne's most notable claim to fame was its use in two very specific projects, in Worli, Mumbai, and Vizag, Andhra Pradesh. For the former, Contractor Samsung, responsible for the project on behalf of Oberoi, utilised Instamix Microne to carry out the repair of the M70 beam at a high rise floor. The project required an M80 Grade micro concrete with Modulus of Elasticity >32 GPa, something that is not possible using dry mix micro concrete. Nuvoco M80 Instamix Microne was the perfect solution helping ensure adherence to quality standards, reducing time required and saving cost as well. It was also used for in the renovation of the ore handling facility of Essar Steel, in Vizag, where the beams, columns, and walls required repairs and retrofitting. While the project required the use of M50 Grade Micro Concrete, the client was using conventional Dry Mix, before he got to know about M60 Nuvuco Instamix Microne. Not only did it save time by having no mixing requirements, it also helped bring about 40% labour reductions as well. In addition to that, it offered much higher bond strength, increased durability and a superior surface finish, proving its potential and effectiveness as a product. As a result, it captured the faith and confidence of the client instantly and ushered in an era of an innovative, technology-driven building repair sector. This in turn will benefit the entire repair and retrofitting industry, improving efficiency, turnaround time and quality, as a result of which, building infrastructure as a whole will flourish, in the years to come. ▪