

Leaking Concrete Structures – The Beginning Of The End?

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Occurrence of leakages within concrete structures are surprisingly more common than most think including professionals within the construction industry. Leakage at any point in the life of the structure is not ideal primarily due to the disruption it creates to asset operation, impact on the durability and aesthetics of the structure and the impact on public perception regarding the safety of the structure. The primary technique utilized to remediate such leakages is injection of resins under high pressure. This technique relies on the resin's ability to react with the moisture within the concrete creating a foam that increases in volume and hardens quickly to arrest further leakages. This approach is considered a hit and a miss as it may require several attempts to fill the path of water within the concrete. With increased scrutiny over materials performance, the durability of such resins is being questioned. This paper discusses the various techniques that can be adopted to increase the durability of injection methods and other methods to remediate leakages including techniques that can be adopted to extend the service life of the structure in addition to treatments adopted to arrest leakages.

Prevention being better than cure, this paper also discusses innovative options that can be adopted during design stage of the structure including the concrete mix to eliminate or at the very least minimize the leakages that occur within the structure and / or minimize the impact on the durability of the structure in the event of such leakages.