

again the service life with this  $K_{CO_2}$  value was estimated. Therefore, the corrosion-level carbonation would reach the steel in 124 years. Based on this experience with concrete covers and coatings (barriers) and that the service of the structure would be for commercial use, it was recommended to use a primary oxide-converting and anti-corrosive coating applied to the reinforcing steel and the application of a crystalline coating on the finished concrete. This helped to create a barrier against the penetration of aggressive agents. Further, to verify the state of the structure, and that the projection was being fulfilled, a preventive maintenance plan was made.

## Conclusions

A reinforced concrete building almost 70 years old with historical value was evaluated and diagnosed with durability criteria. Based on the results, the repair was designed with a prediction of 100 years of service life extension. This was achieved considering a steel coating and a concrete coating (barrier effect) that produced a similar or better protective effect than that recorded during the evaluation. A preventive maintenance plan was designed to help achieve the service life extension.

## Acknowledgments

The authors appreciate the support of Coppel SA de CV, UACAM, Cinvestav, INAH, and INBA, as well as M. Josefa de los Ángeles for her technical support and J.A. Briceño-Mena, thanks to his Conacyt Ph.D. grant.

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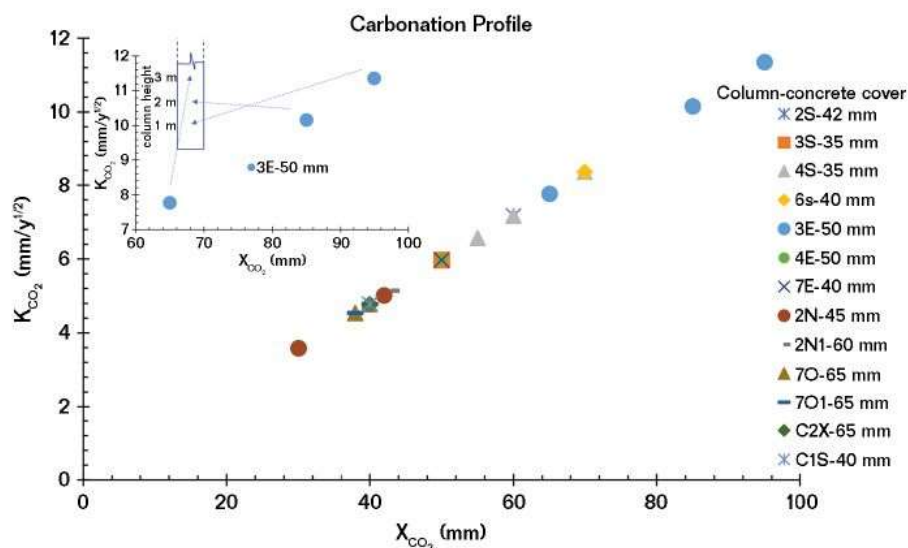


FIGURE 5 Carbonation depth analysis of the evaluated columns.

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