

REFERENCES

- Abosrra, L., Ashour, A., Youseffi, M., 2011. Corrosion of steel reinforcement in concrete of different compressive strengths. *Construction and Building Materials*, Volume 25, pp. 3915-3925.
- Al-Harty, A. S., Stewart, M. G., Mullard, J., 2011. Concrete cover cracking caused by steel reinforcement corrosion. *Magazine of Concrete Research*, 63(9), pp. 655-667.
- American Society for Testing and Materials, 1998. *Standard Test Method for Half-Cell Potentials of Uncoated Reinforcing Steel in Concrete*. ASTM C 876 - 91 ed. West Conshohocken: ASTM International.
- Andrade, C. & Alonso, C., 2004. Test methods for on-site corrosion rate measurement of steel reinforcement in concrete by means of the polarization resistance method. *Materials and Structures*, Volume 37, pp. 623-643.
- Angst, U.M., 2019. Predicting the time to corrosion initiation in reinforced concrete structures exposed to chlorides. *Cement and Concrete Research*, Volume 115, pp. 559-567.
- Ann, K.Y. & Song, H.-W., 2007. Chloride threshold level for corrosion of steel in concrete. *Corrosion Science*, Volume 49, pp. 4113-4133.
- Azarsa, P. & Gupta, R., 2017. *Electrical Resistivity of Concrete for Durability Evaluation: A Review*. New York:Hindawi Limited.
- Badan Standardisasi Nasional, 2013. *SNI 2847:2013 Persyaratan Beton Struktural untuk Bangunan Gedung*. Jakarta: BSN
- Bagavathiappan, S., Lahiri, B., Saravanan, T., Philip, John, Jayakumar, T., 2013. Infrared Thermography for Condition Monitoring - A review. *Infrared Physics & Technology*, Volume 60, pp. 35-55.
- Bonnet, S. & Balayssac, J.-P., 2018. Combination of the Wenner resistivitymeter and Torrent permeameter methods for assessing carbonation depth and saturation level of concrete. *Construction and Building Materials*, Volume 188, pp. 1149-1165.
- Broomfield, J. P., 2007. *Corrosion of Steel in Concrete*. 2nd ed. New York: Taylor & Francis.
- Cao, C., Cheung, M. M., Chan, B. Y., 2013. Modelling of interaction between corrosion-induced concrete cover crack and steel corrosion rate. *Corrosion Science*, Volume 69, pp. 97-109.
- Chen, A., Cao, F., Liao X., Liu, W., Zheng, L., Zhang, J., Cao, C., 2013. Study of pitting corrosion on mild steel during wet-dry cycles by electrochemical noise analysis based on chaos theory. *Corrosion Science*, Volume 66, pp. 183-195.
- Choi, H., Zhang, W., Hama, Y., 2017. Method for determining early-age frost damage of concrete by using air-permeability index and influence of early-age frost damage on concrete durability. *Construction and Building Materials*, Volume 153, pp. 630-639.

- Choi, Y. S., Yi, S.T., Kim, M.Y., Jung W.Y., Yang, E.I, 2014. Effect of corrosion method of the reinforcing bar on bond characteristics in reinforced concrete specimens. *Construction and Building Materials*, Volume 54, pp. 180-189.
- Cook, C., 2006. The high cost of corrosion. *Progressive building*.
- Corral-Higuera, R., Arredondo-Rea, S.P., Neri-Flores., M.A., Gómez-Soberón, J.M., Almaral-Sánchez, J.L., Castorena-González, J.H., Martínez-Villafañe, A., Almeraya-Calderón, F., 2011. Chloride Ion Penetrability and Corrosion Behavior of Steel in Concrete with Sustainability Characteristics. *International Journal of Electrochemical Science*, Volume 6, pp. 958-970.
- Denarié, E., Conciatori, D., Maître, M., Brühwiler, E., 2005. *Air permeability measurements for the assessment of the in situ permeability of cover concrete*. Cape Town, South Africa, CRC Press.
- ElBatouny, M. K., Mangual, J., Paul H. Ziehl, P. M., and Fabio Matta, M., 2014. Early Corrosion Detection in Prestressed Concrete Girders Using Acoustic Emission. *Journal of Materials in Civil Engineering*, Volume 26, pp. 504-511.
- Gonzales, J., Cobo, A., Gonzales, M., Feliu, S., 2001. On-site determination of corrosion rate in reinforced concrete structures by use of galvanostatic pulses. *Corrosion Science*, Volume 43, pp. 611-625.
- Schmitt, G., 2009. *Global Needs for Knowledge Dissemination, Research, and Development in Materials Deterioration and Corrosion Control*, s.l.: World Corrosion Organization.
- Irmawaty, R., Hamada, H., Witanto, H., 2014. *Durability Design for Indonesian Climate*. Balikpapan, 2nd International Seminar on Infrastructure Development In Cluster Island Eastern Part of Indonesia (ISID 2014).
- Jacobs, F. & Hunkeler, F., 2007. *Non Destructive Testing of the Concrete Cover - Evaluation of Permeability Test Data*. Madrid, International RILEM Workshop 19.
- Japanese Industrial Standard, 2018. *JIS A 1108: "Method of test for compressive strength of concrete"*. Tokyo: Japanese Standards Association.
- Japan Society of Civil Engineers. (2010). *JSCE Guidelines for Concrete No. 16 Standard Specification for Concrete Structures - 2007 "Materials and Construction"*. Tokyo: JSCE Concrete Committee.
- Kakooei, S., Akil, H. M., Dolati, A., Rouhi, J., 2012. The corrosion investigation of rebar embedded in the fibers reinforced concrete. *Construction and Building Materials*, Volume 35, pp. 564-570.
- Hornbostel, K., Larsen, C.K., Geiker, M.R., 2013. Relationship between concrete resistivity and corrosion rate - A literature review. *Cement & Concrete Composites*, Volume 39, pp. 60-72.
- Kobayashi, K. & Banthia, N., 2011. Corrosion detection in reinforced concrete using induction heating and infrared thermography. *Journal of Civil Structure Health Monitoring*, 2011(1), pp. 25-35.

- Kucharczyková, B., Misák, P., Vymazal, T., 2010. Determination and Evaluation of the Air Permeability Coefficient using Torrent Permeability Tester. *Russian Journal of Nondestructive Testing*, 46(3), pp. 226-233.
- Layssi, H., Ghods, P., Alizadeh, A. R., Salehi, M., 2015. Electrical Resistivity of Concrete: Concepts, applications, and measurement techniques. *Concrete International*, 37(5), pp. 41-46.
- Bertolini, L., Elsener, B., Pedferri, P., Polder, R., 2004. *Corrosion of steel in concrete: prevention, diagnosis, repair*. Weinheim, Wiley-VCH, Verlag GmbH & Co.
- Liang, M.-T. & Su, P.-J., 2001. Detection of the corrosion damage of rebar in concrete using impact-echo method. *Cement and Concrete Research*, Volume 31, pp. 1427-1436.
- Li, D. S., Ruan, T., Yuan, J., 2012. Inspection of reinforced concrete interface delamination using ultrasonic guided wave non-destructive test technique. *Science China Technological Sciences*, 55(10), pp. 2893-2901.
- Li, D. S., Zhang, S., Yang, W., Zhang, W., 2014. Corrosion Monitoring and Evaluation of Reinforced Concrete Structures Utilizing the Ultrasonic Guided Wave Technique. *International Journal of Distributed Sensor Networks*, 10(2), p. Article ID: 827130.
- Lu, C., Jin, W., Liu, R., 2011. Reinforcement corrosion-induced cover cracking and its time prediction for reinforced concrete structures. *Corrosion Science*, Volume 53, pp. 1337-1347.
- Morales, M., 2015. *Experimental Investigation of the Effects of Embedded Rebar, Cracks, Chloride Ingress and Corrosion on Electrical Resistivity Measurements of Reinforced Concrete*. Corvallis: Oregon State University.
- Neves, R., Branco, F., de Brito, J., 2012. About the statistical interpretation of air permeability assessment result. *Materials and Structures*, Volume 45, pp. 529-539.
- Nguyen, A., Klysz, G., Deby, F., Balayssac, J., 2018. Assessment of the electrochemical state of steel reinforcement in water saturated concrete by resistivity measurement. *Construction and Building Materials*, Volume 171, pp. 455-466.
- Otieno, M. B., Alexander, M. G., Beushausen, H.-D., 2010. Corrosion in cracked and uncracked concrete – influence of crack width, concrete quality and crack reopening. *Magazine of Concrete Research*, Volume 62, pp. 393-404.
- Otieno, M. B., Beushausen, H. D., Alexander, M. G., 2011. Modelling corrosion propagation in reinforced concrete structures – A critical review. *Cement & Concrete Composites*, Volume 33, pp. 240-245.
- Otieno, M., Beushausen, H., Alexander, M., 2016. Chloride-induced corrosion of steel in cracked concrete – Part I: Experimental studies under accelerated and natural marine environments. *Cement and Concrete Research*, Volume 79, pp. 373-385.

- Petro, J. T. & Kim, J., 2012. Detection of delamination in concrete using ultrasonic pulse velocity test. *Construction and Building Materials*, 26(1), pp. 574-582.
- Popovics, S. & Ujhelyi, J., 2008. Contribution to the Concrete Strength versus Water-Cement Ratio Relationship. *Journal of Materials in Civil Engineering*, 20(7), pp. 459-463.
- Pradhan, B. & Bhattacharjee, B., 2011. Rebar corrosion in chloride environment. *Construction and Building Materials*, Volume 25, pp. 2565-2575.
- Proceq, 2016. *Resipod family operating instructions: Concrete durability testing*. Schwerzenbach: Proceq.
- Qian, S., Zhang, J., Qu, D., 2006. Theoretical and experimental study of microcell and macrocell corrosion in patch repairs of concrete structures. *Chemical, Concrete and Composite*, Volume 28, pp. 685-695.
- Ridha, M., Fonna, S., Huzni, S., Ariffin, A.K. 2013. Corrosion Risk Assesment of Public Building Affected by the 2004 Tsunami in Banda Aceh. *Journal of Earthquake and Tsunami*, Volume 7.
- Romer, M., 2005. Effect of moisture and concrete composition on the Torrent permeability measurement. *Materials and Structures*, Volume 38, pp. 541-547.
- Guzman, S., Galvez, J.C., Sancho, J.M., 2011. *Cement Concrete Res*, Volume 41, p. 893.
- Arredondo-Rea, S.P., Corral-Higuera, R., Neri-Flores, M.A., Gómez-Soberón, J.M., Almeraya-Calderón, F., Castorena-González, J.H., Almaral-Sánchez, J.L., 2011. Electrochemical Corrosion and Electrical Resistivity of Reinforced Recycled Aggregate Concrete. *International Journal of Electrochemical Science*, Volume 6, pp. 475-483.
- Salehi, M., Ghods, P., Isgor, O. B., 2015. Numerical Study on the Effect of Cracking on Surface Resistivity of Plain and Reinforced Concrete Elements. *Journal of Materials in Civil Engineering*, 27(12).
- Sathiyarayanan, S., Natarajan, P., Saravanan, K., Srinivasan, S., Venkatchari, G., 2006. Corrosion monitoring of steel in concrete by galvanostatic pulse technique. *Cement & Concrete Composites*, Volume 28, pp. 630-637.
- Song, H.-W. & Saraswathy, V., 2007. Corrosion Monitoring of Reinforced Concrete Structures - A. *International Journal of Electrochemical Science*, Volume 2, pp. 1-28.
- Tan, C., Shee, Y., Yap, B., Adikan, F. M., 2016. Fiber Bragg grating based sensing system: Early corrosion detection for structural health monitoring. *Sensors and Actuators*, Volume 246, pp. 123-128.
- Tapan, M. & Aboutaha, R. S., 2011. Effect of steel corrosion and loss of concrete cover on strength. *Construction and Building Materials*, Volume 25, pp. 2596-2603.

- Torrent, R., 1992. A two-chamber vacuum cell for measuring the coefficient of permeability to air of the concrete cover on site. *Materials and Structures*, Volume 25, pp. 358-365.
- Torrent, R. & Frenzer, G., 1995. Study on methods to determine and judge characteristic values of the cover concrete on site. *Bundesamt für Strassenbau*, Volume 516, p. 105.
- de Vera, G., Anton, C., Lopez, M., Climent, M., 2017. Depassivation time estimation in reinforced concrete structures exposed to chloride ingress: A probabilistic approach. *Cement and Concrete Composites*, Volume 79, pp 21-33.
- Vera, R. Villarroel, M., Carvajal, A.M., Vera, E., Ortiz, C., 2009. *Materials, Chemistry, Physics*, Volume 114, p. 467.
- Verma, S. K., Bhadauria, S. S., Akhtar, a. S., 2013. Review of Nondestructive Testing Methods for Condition Monitoring of Concrete Structures. *Journal of Construction Engineering*, p. Article ID 834572.
- Wei, J., Fu, X., Dong, J., Ke, W., 2012. Corrosion Evolution of Reinforcing Steel in Concrete under Dry/Wet Cyclic Conditions Contaminated with Chloride. *Journal of Material Science and Technology*, 28(10), pp. 905-912.
- Yalciner, H., Eren, O. & Sensoy, S., 2012. An experimental study on the bond strength between reinforcement bars and concrete as a function of concrete cover, strength and corrosion level. *Cement and Concrete Research*, Volume 2012, pp. 643-655.
- Zaki, A., Chai, H. K., Aggelis, D. G., Alver, N., 2015. Non-Destructive Evaluation for Corrosion Monitoring in Concrete: A Review and Capability of Acoustic Emission Technique. *Sensors*, Volume 15, pp. 19069-19101.
- Zhang, J., Gao, Y., Han, Y., 2012. Interior Humidity of Concrete under Dry-Wet Cycles. *Journal of Materials in Civil Engineering*, 24(3), pp. 289-298.
- Zhang, J., Ling, X. & Guan, Z., 2017. Finite element modeling of concrete cover crack propagation due to non-uniform corrosion of reinforcement. *Construction and Building Materials*, Volume 132, pp. 487-499.
- Zhao, Y., Yu, J., Jin, W., 2011. Damage analysis and cracking model of reinforced concrete structures with rebar corrosion. *Corrosion Science*, Volume 53, pp. 3388-3397.