ISO 5091-2:2023-07 (E)

Structural intervention of existing concrete structures using cementitious materials - Part 2: Top-surface overlaying

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Termsanddefinitions 1

4 Investigation of existing structure 2
4.1 General 2
4.2 Investigation 2
4.2.1 Investigation using documents, records 2
4.2.2 On-site investigation 3

5 Intervention design 3
5.1 General 3
5.2 Structural plan 3
5.3 Structural details 3

6 Materials 4
6.1 General 4
6.2 Materials in existing structure 4
6.3 Materials used in repairing or strengthening parts 5
6.3.1 Cementitious materials 5
6.3.2 Reinforcing materials 5
6.3.3 Bonding products 5
6.3.4 Waterproof materials 5
6.3.5 Pavement materials 5
6.4 Characteristic values and design values of materials for repaired or strengthened parts 6
6.4.1 General 6
6.4.2 Cementitious materials 6
6.4.3 Reinforcing materials 6
6.4.4 Bonding products 6

7 Actions 6
7.1 General 6
7.2 Actions for intervention design 6

8 Performanceverificationforrepairedorstrengthenedstructure 6
8.1 General 6
8.2 Calculation of response 7
8.2.1 General 7
8.2.2 Modelling of structure 7
8.2.3 Structural analysis 7
8.2.4 Calculation of response values 7
8.3 Durability verification 7
8.3.1 General 7
8.3.2 Verification related to steel corrosion 7
8.4 Safety verification 7

8.4.1 General 7
8.4.2 Verification related to failure 7
8.4.3 Verification related to fatigue failure 8
8.5 Serviceability verification 9
8.5.1 General 9
8.5.2 Stress level limit 9
8.5.3 Verification related to appearance 9
8.6 Restorability verification 9

8.6.1 General 9
8.7 Structural details 9
8.7.1 Thickness of top-surface overlaying parts 9
8.7.2 Cover 10
8.7.3 Placement of reinforcing materials 10
8.7.4 Joints for reinforcing materials 10
8.7.5 Structural details related to seismic performance 10

9 Construction 11
9.1 General 11
9.2 Prior investigation and construction plan 11
9.3 Mix proportion of cementitious materials 11
9.4 Preparation 12
9.5 Surface treatment 12
9.6 Assembly of reinforcing materials 13
9.7 Manufacture of cementitious materials 13
9.8 Transportation, placement, compaction and finish 13
9.9 Curing 13
9.10 Pavement 13
9.11 Quality control 14
9.12 Inspection 14

10 Records 14

11 Maintenance 14

Annex A (informative) Examples of design and execution 15

Bibliography 18