

SBC

The Saudi Code for Soils
and Foundations

SBC 303 - CC

Code & Commentaries



2024

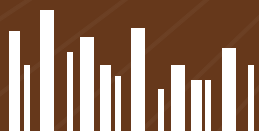


TABLE OF CONTENTS

CHAPTER 1 —GENERAL	1
1.1 —SCOPE	1
1.2 —DESIGN BASIS	1
1.3 —DEFINITIONS	1
CHAPTER 2 —GEOTECHNICAL INVESTIGATIONS	8
2.1 —GENERAL	8
2.2 —SCOPE OF INVESTIGATION	9
2.3 —SOIL CLASSIFICATION	14
2.4 —INVESTIGATION.....	15
2.5 —SOIL BORING AND SAMPLING	15
2.6 —REPORTING	16
CHAPTER 3 —EXCAVATION, GRADING AND FILL	21
3.1 —GENERAL	21
3.2 —COMMENCEMENT.....	21
3.3 —EXCAVATIONS NEAR FOUNDATIONS	21
3.4 —SLOPE LIMITS	22
3.5 —SURCHARGE.....	22
3.6 —PLACEMENT OF BACKFILL.....	22
3.7 —SITE GRADING	23
3.8 —GRADING DESIGNATION	23
3.9 —GRADING AND FILL IN FLOOD HAZARD AREAS	24
3.10 —COMPACTED FILL MATERIAL.....	24
3.11 —CONTROLLED LOW-STRENGTH MATERIAL (CLSM)	25
CHAPTER 4 —PRESUMPTIVE LOAD-BEARING VALUES OF SOILS	27
4.1 —LOAD COMBINATIONS	27
4.2 —PRESUMPTIVE LOAD-BEARING VALUES	27
4.3 —LATERAL LOAD RESISTANCE.....	27
4.4 —COMPUTED LOAD-BEARING VALUES	28
CHAPTER 5 —FOUNDATION WALLS, RETAINING WALLS AND EMBEDDED POSTS AND POLES.....	31
5.1 —FOUNDATION WALLS	31
5.2 —RETAINING WALLS	33
5.3 —EMBEDDED POSTS AND POLES.....	37
CHAPTER 6 —FOUNDATIONS	46
6.1 —GENERAL.....	46
6.2 —DESIGN FOR CAPACITY AND SETTLEMENT.....	46
6.3 —DESIGN LOADS.....	46
6.4 —VIBRATORY LOADS.....	47
6.5 —SHIFTING OR MOVING SOILS.....	47
6.6 —DESIGN FOR EXPANSIVE SOILS.....	47
6.7 —FOUNDATIONS ON OR ADJACENT TO SLOPES.....	50
6.8 —CONCRETE FOUNDATIONS.....	51
CHAPTER 7 —SHALLOW FOUNDATIONS	57
7.1 —GENERAL.....	57
7.2 —SUPPORTING SOILS.....	57
7.3 —STEPPED FOOTINGS.....	57
7.4 —DEPTH AND WIDTH OF FOOTINGS.....	58
7.5 —FROST PROTECTION.....	58
7.6 —LOCATION OF FOOTINGS.....	58

TABLE OF CONTENTS

7.7 —PRESCRIPTIVE FOOTINGS FOR LIGHT-FRAME CONSTRUCTION.....	58
7.8 —PIER AND CURTAIN WALL FOUNDATIONS.....	58
7.9 —STEEL GRILLAGE FOOTINGS.....	59
7.10 —FOOTING SEISMIC TIES.....	59
CHAPTER 8 —COMBINED FOOTINGS AND MATS.....	64
8.1 —GENERAL.....	64
8.2 —LOADINGS.....	64
8.3 —CONCRETE.....	64
8.4 —CONTACT PRESSURE.....	64
8.5 —SETTLEMENT.....	67
8.6 —COMBINED FOOTINGS.....	67
8.7 —CONTINUOUS FOOTINGS.....	68
8.8 —GRID FOUNDATIONS.....	69
8.9 —MAT FOUNDATIONS.....	69
8.10 —SEISMIC REQUIREMENTS.....	71
CHAPTER 9 —DESIGN FOR EXPANSIVE SOILS.....	74
9.1 —GENERAL.....	74
9.2 —LOADINGS.....	74
9.3 —DESIGN.....	74
9.4 —PRE-CONSTRUCTION INSPECTIONS.....	78
9.5 —INSPECTION PRIOR TO PLACEMENT OF CONCRETE.....	78
9.6 —CONCRETE.....	78
CHAPTER 10 —DESIGN FOR COLLAPSIBLE SOILS.....	81
10.1 —GENERAL.....	81
10.2 —LOADINGS.....	81
10.3 —DESIGN.....	81
10.4 —INSPECTIONS.....	86
10.5 —CONCRETE.....	86
CHAPTER 11 —DESIGN FOR SABKHA SOILS.....	92
11.1 —GENERAL.....	92
11.2 —LOADINGS.....	92
11.3 —DESIGN.....	92
11.4 —REQUIRED PREVENTIVE MEASURES.....	93
11.5 —CONCRETE.....	93
11.6 —REMOVAL OF SABKHA SOILS.....	93
11.7 —STABILIZATION.....	94
CHAPTER 12 —DESIGN FOR VIBRATORY LOADS.....	97
12.1 —GENERAL.....	97
12.2 —LOADS.....	97
12.3 —SOIL BEARING PRESSURES, PILE CAPACITIES AND SETTLEMENTS.....	98
12.4 —DESIGN REQUIREMENTS.....	98
CHAPTER 13 —DAMPPROOFING AND WATERPROOFING.....	102
13.1 —SCOPE.....	102
13.2 —DAMPPROOFING.....	104
13.3 —WATERPROOFING.....	106
13.4 —SUBSOIL DRAINAGE SYSTEM.....	108
13.5 —UNDERGROUND WATER-RETENTION STRUCTURES.....	110
CHAPTER 14 —DEEP FOUNDATIONS.....	114
14.1 —GENERAL.....	114
14.2 —ANALYSIS.....	115

TABLE OF CONTENTS

14.3 —DESIGN AND DETAILING.....	118
14.4 —INSTALLATION	143