CONCRETE SPECIFICATION (BS 8500-1:2015)

In accordance with BS 8500-1:2015

TEDDS calculation version 1.0.14

Element definition

Element description	**Edge Protection**
Intended working life	**At least 100 years**
Type of concrete	**Reinforced, normal weight**
Maximum aggregate size	**20 mm**
Allowance for deviation bet. min & nominal covers	Δc_{dev} = **10** mm

Exposure classes

Corrosion induced by carbonation (XC classes)

Type of exposure to air and moisture	**Moderate humidity or cyclic wet and dry**
From BS8500-1 Table A.1	
Classification for corrosion induced by carbonation	**XC3/XC4**

Corrosion induced by chlorides other than from sea water (XD classes)

The concrete is not subject to contact with water containing chlorides.
Therefore there is no XD classification

Corrosion induced by chlorides from sea water (XS classes)

The concrete is not subject to contact with chlorides from sea water.
Therefore there is no XS classification

Freeze/thaw attack (XF classes)

Degree of saturation	**High water saturation without de-icing agent**
From BS8500-1 Table A.1	
Class for freeze thaw attack	**XF3**

Chemical attack (XA classes)

The concrete is not exposed to chemical attack.
Therefore there is no XA classification

Concrete requirements and specification

Consistence class	**S3**

Air-entrained concrete has not been specified

Minimum allowable nominal covers

For exposure class XC3/XC4 (Table A.5)	**40 mm**
Specified nominal cover	**100 mm**

PASS - The specified nominal cover is adequate

Minimum strength class with 100 mm nominal cover

For exposure class XC3/XC4 (Table A.5)	**C25/30**
For exposure class XF3 (Table A.9)	**C40/50**
Specified strength class	**C40/50**

PASS - The specified strength class is adequate

Maximum water/cement ratio with 100 mm cover and C40/50 concrete

For exposure class XC3/XC4 (Table A.5)	**0.65**
For exposure class XF3 (Table A.9)	**0.45**
Specified maximum water/cement ratio	**0.40**

PASS - The specified maximum water cement ratio is adequate

Minimum cement content with 100 mm cover and C40/50 concrete

For exposure class XC3/XC4 (Table A.5)	**260 kg/m³**
For exposure class XF3 (Table A.9)	**340 kg/m³**
For specified max w/c ratio of 0.40 (Table A.7)	**380 kg/m³**
Specified minimum cement content	**380 kg/m³**

PASS - The specified minimum cement content is adequate

Allowable cements/combinations with 100 mm cover and C40/50 concrete

For exposure class XC3/XC4 (Table A.5)	**All in Table A.6**
For exposure class XF3 (Table A.9)	**All in Table A.6 except type IVB-V**
Resultant allowable cement/combinations types	**CEM I CEM I-SR0 CEM I-SR3 IIA IIB-S IIB-V IIB+SR IIIA IIIA+SR IIIB IIIB+SR**
Specified cement/combination designation	**IIIA (>46% ggbs)**

PASS - The specified cement/combination is adequate

Aggregates

For exposure class XF3 (Table A.8)	**Freeze thaw resisting aggregates required**

Designed concrete specification for Edge Protection (100 mm nominal cover)

The concrete shall be produced in accordance with BS8500-2.

Compressive strength class	**C40/50**
Maximum water/cement ratio	**0.40**
Minimum cement/combination content	**380 kg/m^3**
Cement and combination designation	**IIIA (>46% ggbs)**
Maximum aggregate size	**20 mm**
Aggregates	**Freeze thaw resisting**
Chloride content class	**Cl 0,40**
Consistence class	**S3**