الملحق (7-2-1-4)

Dubai Municipality – Building Permits Department
Researches and Building Systems Section

Required Green Cement Combination for Durable & Green Reinforced or Prestressed Concrete Elements [A]	Circular No. 225	July 2018

Substructures

Options	Maximum W/C Ratio	Minimum Combination Content [B] (kg/m³)	Composition
1	0.45	360	OPC [C] with 66%-80%GGBS[D]
2	0.40	380	OPC with 36%-55%Fly Ash
3	0.35	380	OPC with 36%-65%GGBS or 26%-35%Fly Ash

Superstructures

Options	Compressive Strength (Cylinder/Cube)	Maximum W/C Ratio	Minimum Combination Content [B] (kg/m³)	Composition
4	≥ C45/55	0.35	380	OPC [C] with 26% to 35% GGBS
5	≥ C45/55	0.35	380	OPC with 16% to 20% Fly Ash
6	C40/50	0.35	380	OPC with 36% to 65% GGBS
7	C40/50	0.35	380	OPC with 26% to 35% Fly Ash
8	C32/40	0.40	380	OPC with 66% to 80% GGBS
9	C32/40	0.40	380	OPC with 36% to 55% Fly Ash
10	C32/40	0.45	360	OPC with 36% to 65% GGBS
11	C25/30	0.50	340	OPC with 66% to 80% GGBS
12	C25/30	0.50	340	OPC with 36% to 55% Fly Ash
13	Blinding Concrete	0.55	202	OPC with 36% to 65% GGBS
14	Blinding Concrete	0.55	202	OPC with 26% to 35% Fly Ash

Notes:

A. The specifications are based on the requirements of BS 8500-1 standard.

B. The minimum cement/combination content specified is for 20mm aggregate size

C. OPC stands for Ordinary Portland Cement (CEM I)

D. GGBS stands for Ground Granulated Blast-furnace Slag

General Notes:

1. ***Silica fume*** - may be added to the concrete mixes to achieve the required strength and/or durability requirements of any project.
2. ***Testing*** - of concrete specimens at **56 days** for compressive strength may be allowed for mixes with high percentages of cement replacements.
3. ***Temporary works*** - are not part of this specifications (such as shoring, shotcrete...).
4. ***Non-structural protection screed*** – is not part of this specifications.
5. ***Concrete Slump –*** the use of high percentage of GGBS in concrete mixes may cause difficulties in handling concrete (pumping, placing, finishing...); therefore, it is recommended to specify and accept higher slumps for such mixes in order to avoid any addition of water to the concrete mix on the construction site.
6. ***Durability*** – the above requirements are limited to the minimum durability specifications for concrete structures. Design engineers shall be consulted for the right durability specification for every project based on the prevailing conditions of the structure (service life, exposure conditions, concrete grade, concrete cover...).
7. ***Concrete Cover*** – The minimum recommended clear concrete cover to reinforcement for substructures is 50mm/75mm *(50mm for concrete cast against blinding; 75 mm for concrete cast directly against soil)* and 30mm for superstructures. The final concrete cover shall be specified by the design engineer based on the structural and durability considerations of the building.