

BUILT ENGINEERS

Self-Compacting Concrete trials were carried out as a pre-cursor to specifying a site mix for concrete encased steel columns at Winchelsea Beach House, Sussex which demanded a particularly high quality fine grained and durable finish.



4 batches were considered as possibilities, 2 with ordinary Portland cement and 2 with White cement. Within each colour category 1 mix was prepared with cement alone, and 1 with a 40% replacement of cement by GGBS. This gave an option to both reduce the environmental impact whilst improving long term strength & durability.

Self-Compacting Concrete

A Superplasticiser was used to reduce the yield stress giving the high fluidity required for self-compacting concrete. A Stabiliser was used to reduce segregation which can occur with highly flowable concrete.



Spread Flow tests (similar to a Slump Flow test for normal concrete) were carried out to evaluate the performance of each of the mix designs. A target spread code SF2 (660 to 750mm) is required for column design. This was successfully achieved with each batch.



A sample set of cubes were poured for each mix design to provide strength data at both 7 and 28 days.



A single column sample was poured for each mix design to give a good representation of the final product and its aesthetic. Proprietary cylindrical formers with PVC internal liners were supplied by Essex Windings.



28 day cube strengths in the range 35 to 45N/mm² were achieved, carried out at the Elvery Concrete Laboratory of University College London.



The resulting sample columns gave a high class finish.