LEED Review Comment Response Narrative
Project: SEA Building Addition (1000125923)
Credit: Building Life-Cycle Impact Reduction
Design Preliminary Review

1. The project is using a cement reduction optimization strategy and the baseline concrete mix is based on NRMCA South Central regional average data, however, additional relevant assumptions regarding the optimization have not been provided.

Describe the modeling assumptions for the baseline and proposed concrete mixes including information such as % flyash in each mix and a description of the CarbonCure technology. Be sure to explain any special circumstances.

Response:

The Construction Documents contained maximum portland cement content limitations for each type (foundation, floors, columns, topping) of concrete used on the project. These limits were based on past experience in the city and what some local suppliers are able to provide, and with the hope the project would be able to achieve the 10% reduction thresholds for this credit. However, while the selected concrete supplier was not able to achieve the limits, but was able to be significantly lower than the cement contents of the NRMCA South Central reference mix proportions. The project used approximately 2,400 cubic yards of concrete, of which over 95% of the concrete was in the floors (approx. 60% of total volume), foundation (approx. 25%), and columns (approx. 10%). The NRMCA reference mixes are approximately “16% fly ash” mixes. The mixes submitted during construction administration and used for the foundation were “50% fly ash mixes” with an equal amount of cement and ash in the binder fraction. The foundation mixes saved nearly 150 lbs of cement per cubic yard of concrete. The floor and column mixes used a product called Carbon Cure which injects CO2 into the mixer drum to enable early stage carbonation and reduce cement demand. These mixes also used fly ash as 20% of the binder, but more importantly resulted in an over 100 lb/ cubic yard reduction in cement content. In total for the approximately 2,400 cubic yards of concrete the required mix optimizations avoided the usage of 270,000 lbs (or 120,000 kg) of cement, which achieved the overall GWP reduction for the core and shell scope of the WBLCA.