

CONSUMER FINANCIAL PROTECTION BUREAU BLAST STRENGTHENING

Key Coat Application over Tyfo® SCH-41

OVERVIEW

Consumer Financial Protection Bureau building has started a tenant fit out of an existing building located next to the White House in Washington D.C. The super structure requires a blast strengthening component due to new terror concerns. In addition, the mid century modern aesthetics of the building carries the exposed column finish up the outside of the building from the first floor. The exposed columns located on the first level required blast strengthening using fiber-reinforced polymer (FRP) while maintaining the current visual aesthetic.

Our first steps were to provide the customer with a variety of color choices for the finish material along with test samples of the concrete finishing texture. It was determined early in the process that using shotcrete pneumatically applied concrete would allow for the best control and bond for this application. Using shotcrete allowed us to apply the concrete uniformly and provided the opportunity to finish the column by hand, allowing for modifications to the design as needed by the owner and eliminating the need for a seam produced by a form.

Project Overview	
Project	Consumer Financial Protection Bureau Blast Strengthening
Location	Washington D.C.
Installation Method	Wet lay up
Owner	Consumer Financial Protection Bureau
Contractor	Grunley Construction



Column with Tyfo® SCH-41

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PROJECT PROFILE: STRUCTURAL STRENGTHENING TYFO® SYSTEM

OVERVIEW

The next challenge was to provide a secured bond between the shotcrete and the FRP to ensure no cracking within the system and maintain the thickness requirements. The thickened epoxy top coat was broadcast with clean quartz stone to provide a more durable surface and increase the bond strength between the FRP and shotcrete. This technique is the same method used by our New Zealand counterpart Concrete Solutions. Mating the quartz stone with Sika's Armatec product provided a substantial bond between the concrete/FRP interfaces.

Additional measures were also provided to alleviate any cracking in the thin layer of concrete that might occur during the curing process. Steel mesh was installed over the entire column on the top of the FRP system. A one-inch space was provided between the mesh and the FRP system to allow for a top coat of one-inch over the top of the mesh for final finishing. After the column was shot and completely finished, a curing compound was also installed to reduce cracking.



Shotcrete being applied to the column



Finishing the shotcrete