

STRUCTURAL UPGRADE OF BUILDING IN JUNCTION CITY, OR

Column Strengthening Using Fiber Reinforced Polymers

Fiber Reinforced Polymers (FRP) were originally tested as a retrofit method for confinement of bridge columns. FRP continues to be used for column strengthening in many different applications because of its high strength, minimal impact to the structure and ease of installation. Contech Services' Inc. Portland/Vancouver office was contacted to strengthen columns in a concrete building. The owner of the building was changing the interior. Partial demolition of walls resulted in pilasters acting as free standing columns. These new columns did not meet current code



Finished Columns With FRP

requirements for internal reinforcing. Following analysis, the engineer of record provided both a shear requirement and minimum confinement steel equivalent to which the FRP was designed.



Finished Columns With FRP

During installation of the FRP material, it was discovered that one longitudinal bar in a column was damaged. The approved design for the FRP did not include strength in the vertical direction, so a revised design needed to be performed. To prevent delays on the job, Contech Services worked with the Engineer of Record to add FRP in the longitudinal direction. The new design was proposed and approved quickly so the short schedule for installation could still be met. Strengthening of columns with FRP continues to be used as an alternate to section enlargement or steel jackets. On this project, the FRP design met structural requirements while taking no significant space in the building. Quick engineering changes were done to allow the project to be installed on time and within budget.

MULTI-LEVEL APARTMENT BUILDING IN SAN DIEGO

Water Intrusion Issues Solved In Underground Garage

The Southern California Office of Contech Services, Inc. was hired by the owners of a multi-level



Existing Efflorescence Build Up



Injection of Epoxy Resin



Finished Work

apartment building to seal off chronically leaking cracks in the below grade shotcrete walls. Years of water intrusion left unsightly discolored and caulky residue known as "efflorescence build up" on the wall. The solution was to remove the efflorescence by surface grinding along all affected crack lengths using dustless hand grinders. Once exposed, these actively leaking cracks were structurally sealed by pressure injection of a thin Kontek epoxy resin. The resin displaces the water and re-bonds the cracked concrete substrate. Contech's crew was able to access the walls for repairs with minimal disruption to the daily tenant parking. These challenging repairs were completed on-time and under budget, with repaired crack footage in excess of 2,500 lineal feet.

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