



## Square Shopping Center, Fort Collins, Colorado

Square Shopping Center is a renovation project focusing on the renovation and repair of existing double tees to increase capacity for flexural loads. EnCon Renew focused on the use of carbon fiber rods for a bonded strengthening to upgrade the existing double tees. The double tee live load capacity increased from 75 psf to 125 psf. Carbon fiber was selected because it is cost effective, easy to install and inspect, provides stronger reinforcement than steel rebar, and can be tailored and designed to meet desired specifications for an innovative structural design, repair, and application. Carbon fiber is also highly resistant to corrosion and fatigue, making it a leading material in structural engineering applications.

Carbon fiber rods were placed in the bottom leg sections of the double tees on both sides. The rods were used to repair a total of 12 double tees. Epoxy Sikadur 32 was used in conjunction with the carbon fiber rods.

EnCon Renew used spray fireproofing as a final finish in order to meet the code minimum two hour fire rating.

### Project Facts:

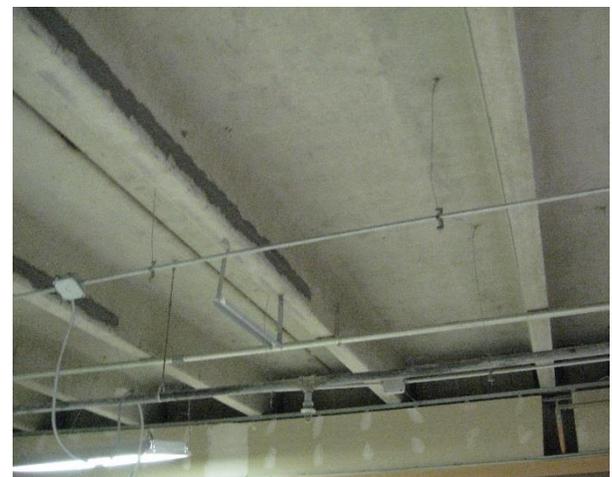
<b>Market Segment:</b>	Retail
<b>Building Type:</b>	Supermarket
<b>Products Used:</b>	Double tee reinforcement with carbon fiber polymer bars
<b>Finishes Used:</b>	Fireproofing

### Project Design Team:

<b>Owner:</b>	Square Shopping Center, Ft. Collins, CO
<b>General Contractor:</b>	Sailer Construction
<b>Engineer of Record:</b>	EnCon Design, LLC

### Company Information:

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Carbon fiber rods were placed in the bottom leg sections of both sides on the double tee legs. The carbon fiber rods act as reinforcement to increase live load capacity.



In order to change the double tee live load capacity from 75 psf to 125 psf to meet requirements, carbon fiber rods were integrated into the double tee legs.



To install carbon fiber rods for reinforcing, grooves are saw cut into the concrete surface slightly larger than the diameter of the rod. Epoxy was used as a structural adhesive to bond the carbon to the concrete.



EnCon Renew used fireproofing finish on the double tees to provide the necessary two hour fire rating.

