



# CASE HISTORY

SAFEBASE™ CARBON FIBER

## BASEMENT WALL REINFORCEMENT WITH CFRP



SafeBasements of Minnesota was contacted regarding issues with a bowing basement wall showing some cracks and initial signs of inward displacement. SafeBase™ carbon fiber straps were installed vertically at 5' on center along the length of the wall with a continuous horizontal strap across the top. SafeBase™ 8" wide 12K bidirectional mesh was used. The carbon fiber reinforced polymer (CFRP) strengthens the wall externally similar to how rebar would strengthen a wall internally. The carbon fiber mesh is bonded to the using a high strength epoxy. Prior to placing the carbon fiber the concrete must be ground to expose the aggregate to improve the bond strength of the system. Once the surface is ground it must be cleaned to be free of all dust. The SafeBase™ Carbon Fiber Strap is secured at the bottom of the wall using a steel bracket attached to the concrete slab.





The slab bracket is composed of two pieces of steel and two anchor bolts. The carbon fiber strap is wrapped onto a flat steel plate and overlain with a reinforced steel angle and the assembly is bolted to the floor, it may also be attached to the footing if installing an interior drain tile system. At the top of the wall a series of joist brackets are attached to the floor system to prevent any tipping of the foundation wall. Two joist brackets are installed per vertical strap when the joists run perpendicular to the wall. In this case the floor system was composed of floor trusses requiring a piece of 2x10 to be attached to three members of each floor truss above the top of the wall for mounting of the joist brackets. Each joist bracket is attached with (7) 1/4x1-1/2 SDS screws or lags. The project was completed in January of 2022.



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