



InvisiBeam® Kevlar Top Anchor “Necktie” Testing Report

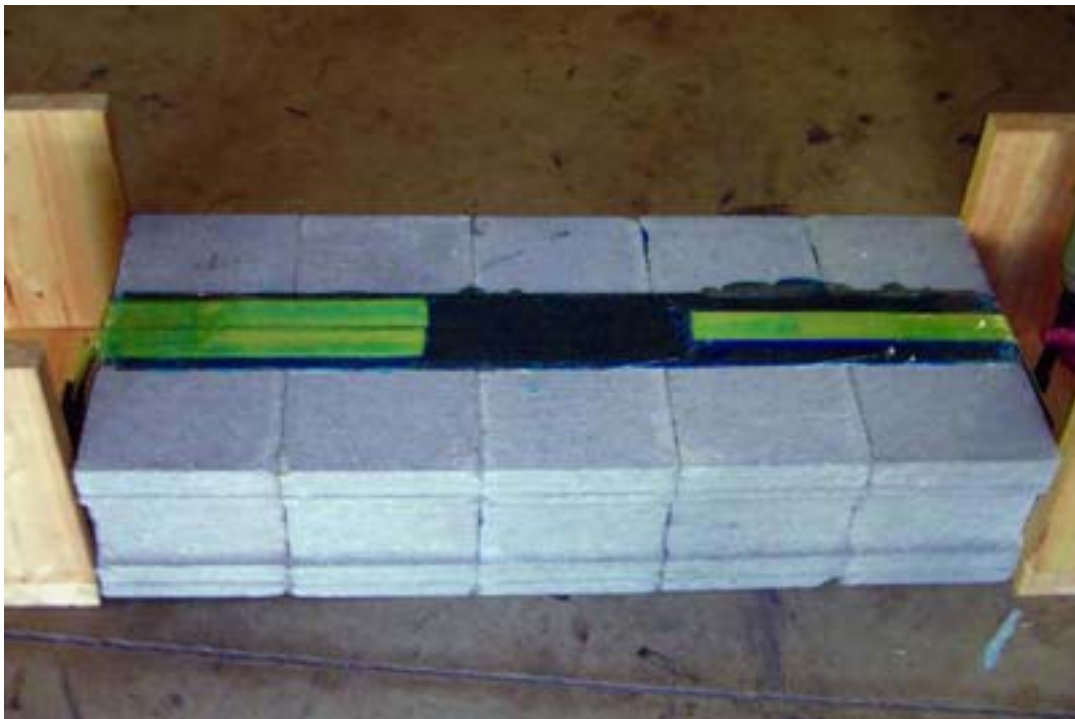
Test Method

Five C.M.U. 16”x 8”x 8” blocks were glued together to form a straight beam. On one side of beam a standard 4 1/2” 18 tow carbon Kevlar strap was laminated in center of beam, from top to bottom.

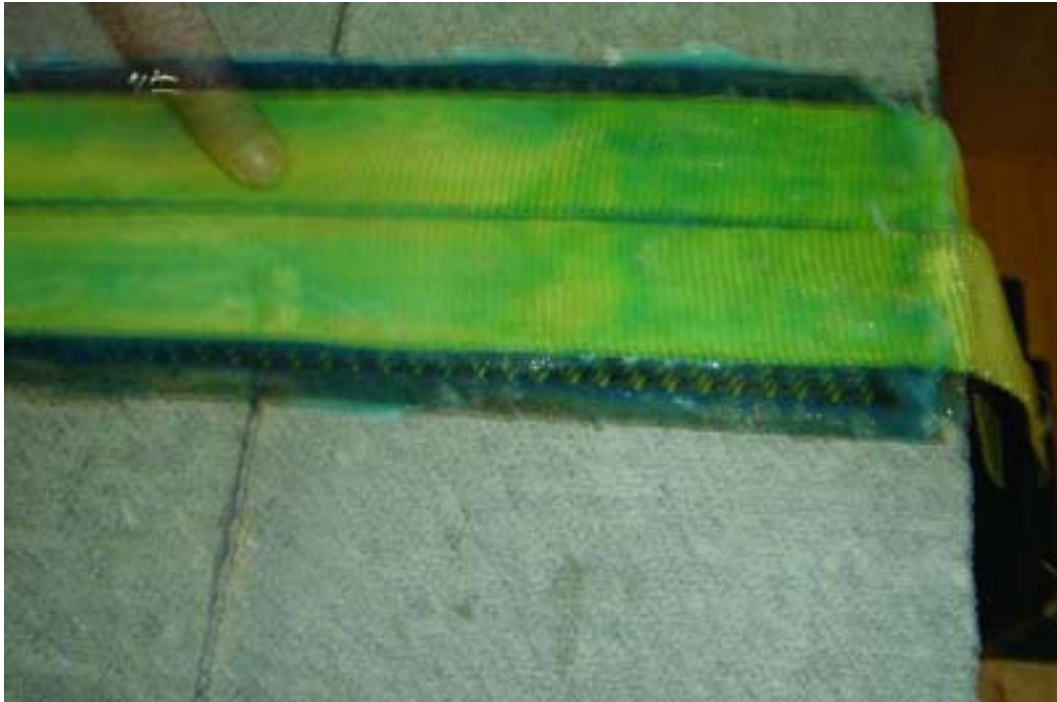
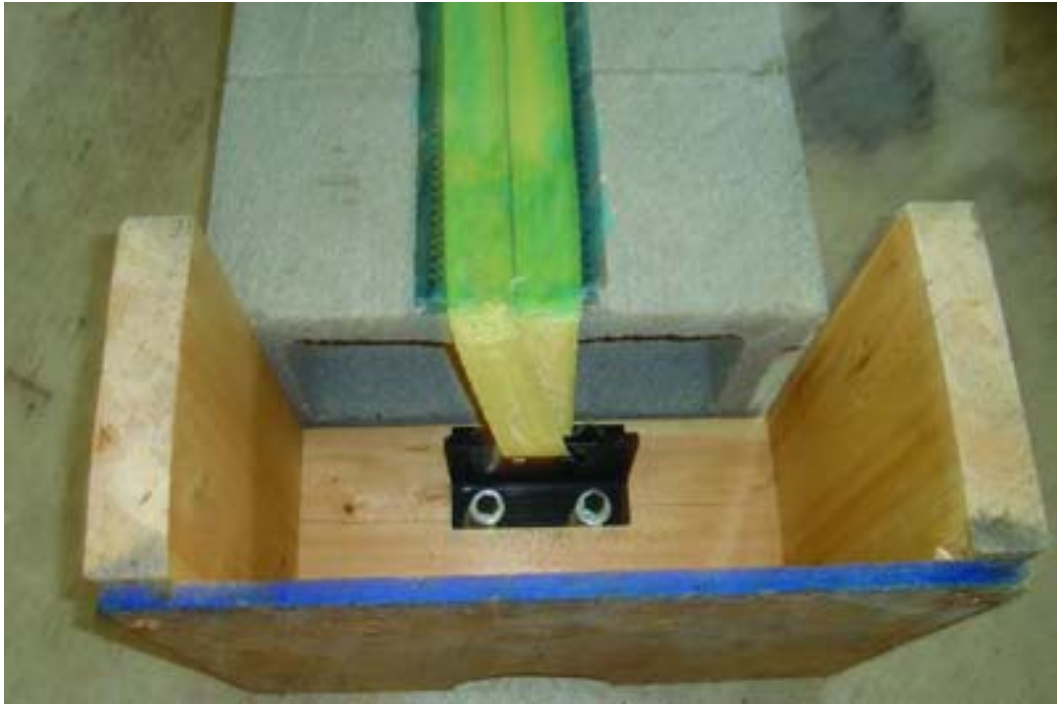
Both ends of the beam were designed to mimic the top of a building in design, with lack of sill plate. Standard 2”x 8” framing wood stock was used to represent 2 floor joists and bond beams. The joists were 16” on center and nailed to bond beam with 4 #16 penny nails.

Aluminum bracket was attached to bond beam using 3/8”x 2” lag screws. Kevlar webbing Necktie was then slipped through aluminum bracket and both ends were laminated to wall.

After laminate cured for 24 hours the entire beam was turned over and placed under testing stand. A 10,000 psi pump and 30 ton hydraulic ram were chosen for testing. Force was determined by a pressure transducer calibrated to 10 lb increments with a LED readout placed under ram and centered on beam. Pressure was then applied slowly. Bond pressure reached 6,000 psi as the top lag screws began to start pulling out of wood. Testing was complete.







Conclusion

Entire system in conjunction performed to loading of 6,000 per 16 inches on center with less than a 1/16" deflection or elongation of Kevlar. Top lag screws appeared to experience the most loading in tensile pull.

