

## **Barnes Ballistics Lab Intermediate Barrier and Penetration Testing**

The test medium utilized is 10% ballistic gelatin, by weight.

Tests one through six are shot at a distance of 30 feet from the muzzle to first barrier.

1. Test One – Bare Gelatin
2. Test Two – Heavy Clothing – The gelatin block is covered with four layers of clothing. One each of the following:
  - A. Cotton t-shirt material (approx 48 threads/inch & 5.25 ounces per square yard)
  - B. Cotton dress shirt material (approx 85 threads/inch & 3.5 ounces per yard)
  - C. A down comforter (500-550 fill power) in a cambric shell (approx 232 threads per inch)
  - D. Denim (approx 50 threads/inch & 14.4 ounces/square yard)

The shots are fired to not impact on a stitch line of the comforter. Tests #3-#6 use light clothing (e.g., the cotton t-shirt and dress shirt materials above), in addition to the mentioned intermediate barrier.

3. Test Three – Steel – Two pieces of 20 gauge, hot-rolled steel with a galvanized finish are set three inches apart. The clothing covered gelatin block is placed 18 inches behind the rear most piece of steel. This test event simulates the weakest part of a car door.
4. Test Four – Wallboard – Two pieces of ½-inch standard gypsum board are set 3.5 inches apart. The gelatin block is placed 18 inches behind the rear most piece of gypsum. This test even simulates a typical interior building wall.
5. Test Five – Plywood – One piece of ¾-inch “AA” fir plywood is set 18” in front of the gelatin block. This test event simulates the resistance of typical wooden doors or construction timbers.
6. Test Six – Automobile Glass – One piece (15" x 18") of A.S.I. ¼-inch laminated automobile safety glass is set at an angle of 45° to the horizontal and 15° to the side, resulting in a compound angle. The gelatin block is placed 18” behind the glass. This test event simulates a shot taken at the driver of a car from the left front quarter of the vehicle.