Crash Barrier Building Facts

Location: Research and Engineering Center, Dearborn, Michigan, USA

History:
1954	First crash test conducted by Ford (Car-to-car test, conducted outdoors)
1955	North Crash Barrier built, one of earliest industry efforts
1964	North Crash Barrier reconstructed to SAE standards (reinforced concrete, crash test #170)
1968	North Crash Barrier enclosed and environmentally controlled
1975	High peak roof enclosure constructed for vehicle-to-vehicle crash tests
1980	Major expansion added South Crash Barrier with second vehicle-to-vehicle test area, computerized dummy calibration lab
1995	10,000th crash test.
2005	15,000th crash test conducted
2011	New shuttle system and drive retuning for 75mph vehicle-to-vehicle test.
2013	Mass and fixture anchoring plates installed for alternative barrier test site.

Crash Tests: More than 20,000 crash tests have been conducted since 1954
2-3 crash tests are conducted per day, up to 800 tests per year

Types of Tests and Safety Requirements:

⇒ Perpendicular Frontal Impacts into Rigid Barrier

⇒ Frontal Impacts into Barrier Set at 30° from Perpendicular

⇒ Frontal 40% Offset Impact into Deformable Barrier

⇒ Frontal 25% Overlap Impact into Rigid Barrier

⇒ Cart-to-Vehicle Side Impact Tests

⇒ Vehicle Rigid Pole Side Impact Tests

⇒ Cart-to-Vehicle Side and Rear Impact Tests

⇒ Airbag Sensor Development Tests

South Crash Barrier Specifications:

Configuration:	Two impact areas, 600 foot long fully-enclosed runway.
Crash Barrier Mass & Size:	1,080,000 lb,10 feet above ground, 13 feet below ground
Tow Cable:	½" Diameter continuous loop cable, 26,600 lb breaking strength

Instrumentation:

The majority of crash measurements are of acceleration, force, and displacement. Each test includes up to 300 vehicle and dummy instrumentation data channels. The data acquisition electronics are housed in a package designed to withstand shocks up to 100 G's.

High Speed Cameras:

Up to 30 High-speed digital cameras per test, trigger synchronized with instrumentation data.