

This is the New Jersey design of flat-angle high-speed collision. You can see here practically no damage to the car, a slight amount. A great deal of energy was eaten up in raising the car, rather than in crushing the car. Decelerations on Sam were very low, even though this was a 65-mile-an-hour collision, at 7°.

Now this is at 25°, same speed. You will notice now the reaction of this is just like any other rigid barrier; that is, that it is very severe, very light, all the energy absorbed in the car. Accelerations on Sam were quite high.

No damage to the barrier, however; most of the deceleration energy was absorbed by the car.

This is our standard bridge rail with a safety walkway in front of it. You will notice as the wheel of the car went over the walkway, there was little or no change in elevation of the car. This is due to the spring system of most American automobiles.

If the rail were farther back, then the rebound or the spring system would start to raise the car.

This is a back view of the same accident. The tire blew out as it went over.

A series of tests now showing our test of curbs. We determined the most effective height and design. Our early studies showed that undercut to be quite effective, but even the best curb, high speed, low angle, you would go over them; you go over curbs at low speeds, this is only 5-miles-an-hour collision at 30°.

We wanted to know what kind of jump we would get going over a curb and that happened to be a 60-mile-an-hour collision.

We did find that in the first part of the jump, a great deal of the jump was absorbed by springing system. Here this is going over only a 6-inch high curb you can see the soft spring system did not affect the car at all at first but a little bit later it started to impart a jump.

Now here is a hard sprung sports car going over the same height, same speed. As you can see because of the hard springing, the jump is quite a bit more than over the soft sprung.

Mr. CONSTANDY. You are not enthusiastic for curbs, are you?

Mr. BEATON. No, sir, not enthusiastic at all.

Mr. CONSTANDY. You would prefer that they were not used?

Mr. BEATON. I do not think curbs should be used unless they are absolutely necessary.

[Narration continued:] Here is a sports car going into our cable barrier over a 6-inch height curb. In this case, the barrier is close enough so that the car was not jumping too much before it was caught.

Here we are going to test a series of geometric configurations approaching our cable barrier. This is a typical sawtooth. You will see as the car comes up underneath, a sports car, low anyway, it will penetrate the barrier. We had problems with this at first, and have no longer any use for it in this type of a location.

Here is a car approaching on the high side of the superelevation on a curb. This gives a high-speed car sufficient jump to clear the barrier. Again, we had to recognize this fact in our designs and placement of such barriers.

This is a 66-mile-an-hour collision with precast concrete median barrier that we attempted to develop because it was cheap. We have never used this, needless to say. However, it is a good example, I think,