THE SCIENCE BEHIND THE SURFACE

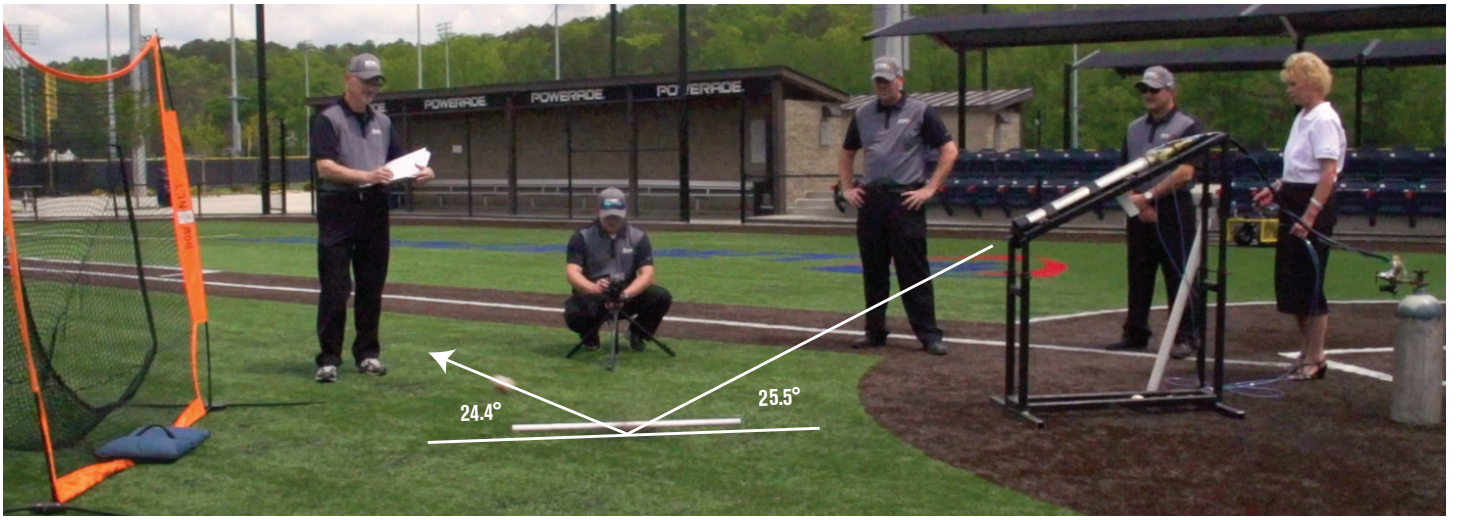
shaw SPORTS TURF

WHAT IS THE ANGLE OF RESTITUTION?

The Angle of Restitution is a ratio of the outgoing angle of the ball after impacting the surface vs. the incoming angle of the ball as it impacts the surface. It is the interaction of the ball propelled at a certain angle and speed. The frictional interaction between the ball and surface can create ball spin, high frictional interaction will create high spin on the ball, less frictional interaction results in less spin which allows the ball to glide or skip on the surface. The frictional amount of energy absorbed will determine the angle of the ball.

HOW IS IT MEASURED?

To measure the Angle of Restitution a ball is projected at the field by a cannon in a 45 degree angle from a height of one meter. A radar gun is also used to measure the horizontal speed of the ball before and after impact. The velocity of the ball is recorded immediately before and after the ball impacts the surface. This procedure is repeated five times making sure that the ball does not hit the same spot twice.



WHAT DOES THIS MEAN FOR MY FIELD?

The frictional amount of energy absorbed by the surface will determine the angle of the ball. This is important because it will affect the players desired reaction to the ball coming off of the surface. A high angle of restitution will put more spin on the ball which can mean a bigger hop, at a low angle of restitution the ball will have less spin and will skip more off of the surface resulting in more, smaller hops. If the angle of restitution on synthetic turf closely mimics that of a natural grass field, then your athletes will react naturally to the ball. If it does not closely mimic the angle of restitution of natural grass then your athletes will react differently compromising their natural abilities.