

Cement vs Concrete



Keith Norris, brother of Arlyn Norris, spoke at the Optimist Club on November 13. Keith has worked for the Iowa Department of Transportation for 33 years.

Cement is the white mixture that is the binder ingredient of concrete. Cement consists of limestone, clay, and iron ore to help with chemical reactions. This mixture is heated to 2700 degrees to make clinker. The clinker is ground to a powder and mixed with gypsum to make cement. The gypsum slows the setting time of the cement.

Although there were many types of cement from the time of the Romans, modern day Portland cement was discovered in England in the mid 1800s. The quality of the limestone and clay helps determine the quality of the cement. The best cement in Iowa comes from the Mason City area and Northeast Iowa.

Concrete is made from adding gravel, sand, water, and admixtures to cement. The water reacts with the cement, which bonds the other components together. Concrete is used more than any other man-made material in the world.

Because cement is the weakest part of concrete, it is desirable to reduce the amount of cement paste used in concrete. It is also desirable to keep the amount of water

added as low as possible.

On roads, concrete is expected to last at least 30 years on the Interstate with minimal patching. The goal is to have it last 50 years with minimal patching. Due to the rising cost of oil, the initial cost of asphalt and of concrete for a road is about the same today.