

# **Grant Luckenbill, Civil Engineering**

Year in School: Senior

Hometown: Cameron, MO

Faculty Mentor: Dr. V.S. Gopalaratnam, Civil Engineering

Funding Source: College of Engineering Honors Undergraduate Research Option

## **Material testing for precast prestressed road panels**

Pavement technology is an ever expanding process that is revolutionizing the abilities and applications of concrete. New manufacturing methods and materials are creating new design procedures and requiring state of the art testing. For undergraduate research, I have been particularly involved with Dr. Gopalaratnam's MODOT Prestressed Post-tensioned Roadway Project. My focus has been on the unrestrained creep and shrinkage material characteristics of steam cured concrete panels. During trips to the casting yards, it was my responsibility to collect 6" x 12" concrete specimens for performing creep and shrinkage tests back in our lab. I intend to provide an overview of the preparation and instrumentation of the concrete specimens. Furthermore, I would like to illustrate how the results from unrestrained creep and shrinkage tests will be used to analyze and predict service response of the prestressed road panels.