



# CERNY & IVEY ENGINEERS, INC.

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ENGINEERING SOLUTIONS  
SINCE 1967

IAS LISTING NUMBER TL-298

October 7, 2005

Mr. Ken Cornwall  
Pro Set Systems  
1355 Capital Circle  
Lawrenceville, GA 30043

**SUBJECT:** Laboratory Test Report 25259  
Series 43-CR Coupling Leakage Test

Dear Mr. Cornwall:

## INTRODUCTION

On October 5, 2005, testing was concluded on four differing sizes Pro Set Systems pipe sleeves identified as series 43-CR sleeve couplings. The sleeves had extension couplings on the top and elastomeric rings in the middle that were attached. This testing was performed to determine if the sleeve envelope remains watertight for 72 hours when installed in concrete.

## SPECIMENS

One sample each of 2-inch and 3-inch couplings were set in 12-inch x 12-inch x 4.5-inch slabs of Quikrete Readymix 1101, 4000 PSI concrete, while one each of 4-inch and 6-inch sleeves were set in 16-inch x 16-inch x 4.5-inch slabs of identical composition. Slurry mixture and sleeve placement were both performed under direct supervision of Pro Set representatives on September 22, 2005. Concrete specimens were allowed to cure for eight days, then boxed in 42-inch tall sealed plywood enclosures. Following 3 additional days of curing, plywood enclosures were marked to indicate 36-inch water level. Water testing commenced on October 3, 2005 with





the filling of each plywood enclosure to the 36-inch level mark with room temperature tap water. Water columns were allowed to stand and maintained as necessary for 72 hours.

**RESULTS**

Four test specimens were constructed and tested as described. Observations were conducted and recorded hourly during eight-hour periods for three days. Under a uniform static water pressure of 1.3 PSI, no water penetration was observed at the coupling/concrete interface of any specimen.

Please contact our office should you have further questions or need additional assistance.

Respectfully submitted,

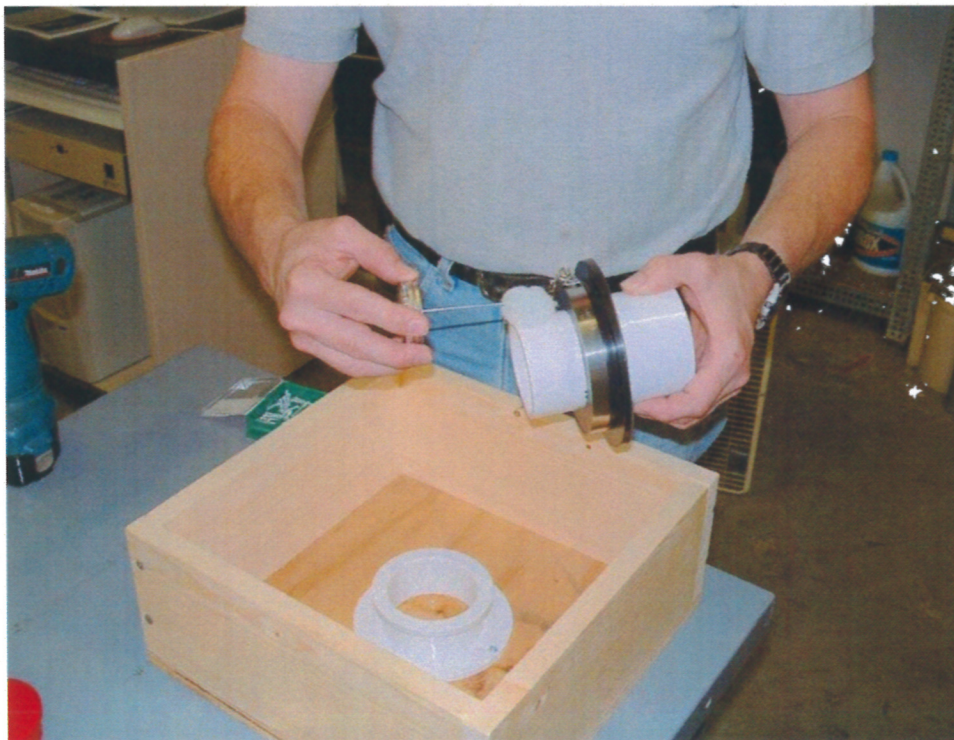
Stephen W. Smith  
Engineering Associate

Christopher B. Shiver  
Vice President – Principal Engineer



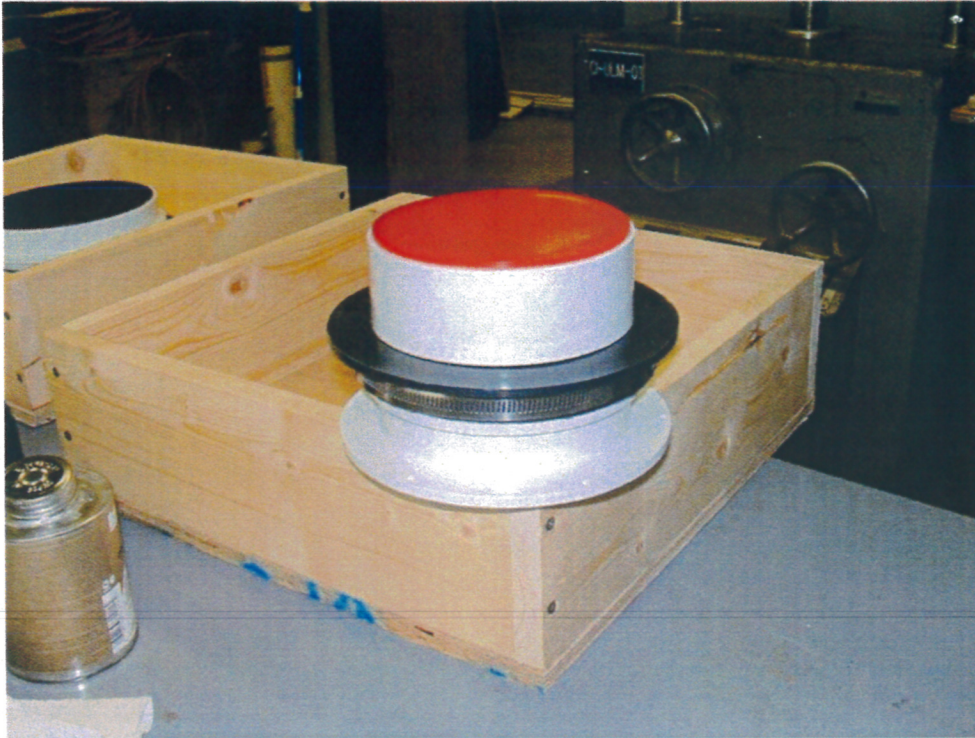
**PHOTOGRAPH 1**

ATTACHING THE MOUNTING FLANGE TO THE FORM USING SCREWS OR NAILS



**PHOTOGRAPH 2**

SOLVENT CEMENTING THE "CR" SLEEVE WITH THE WATER GUARD RING AND COUPLING EXTENSION TO THE MOUNTING FLANGE



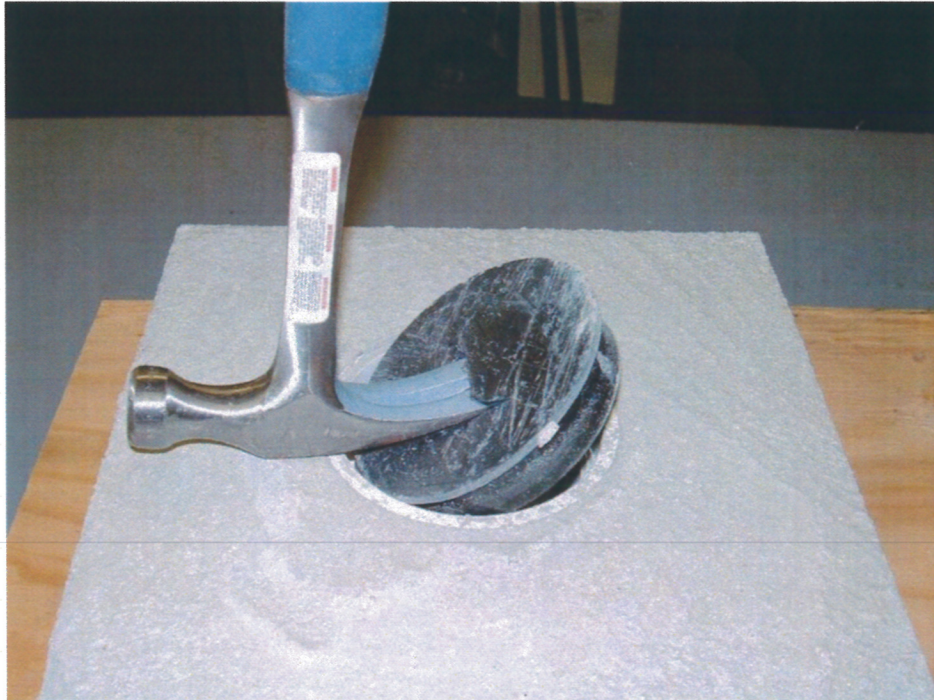
**PHOTOGRAPH 3**

SHOWS THE COMPLETE "CR" SLEEVE WITH THE WATER GUARD RING AND EXTENSION COUPLING



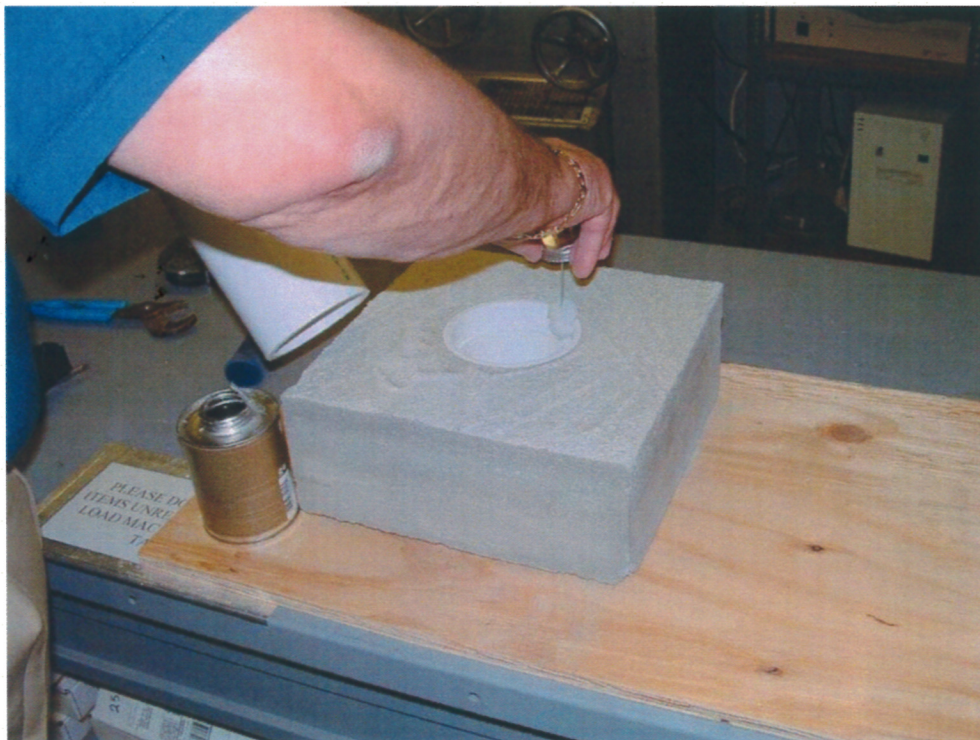
**PHOTOGRAPH 4**

4000 PSI CONCRETE IS POURED INTO 12" SQ.X 4-1/2" BOXES FOR THE 2" & 3" SIZES AND 16" SQ.X 4-1/2" FOR THE 4" AND 6" SLEEVES



**PHOTOGRAPH 5**

SHOWS REMOVING THE PROTECTIVE CAP PLUG FROM THE EMBEDDED SLEEVE AFTER CURING CONCRETE FOR 8 DAYS



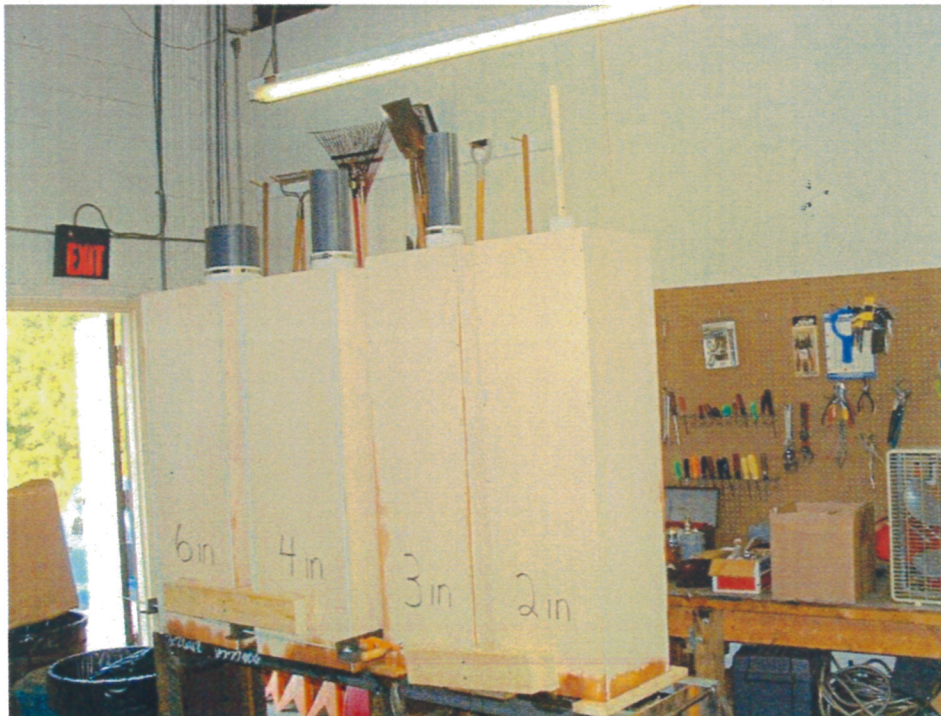
**PHOTOGRAPH 6**

SOLVENT CEMENTING THE 42" SLEEVE EXTENSION TO THE EMBEDDED "CR" SLEEVE



**PHOTOGRAPH 7**

TOP EXTENSION SLEEVE EXTENDS UP 42" FROM THE TOP OF THE CONCRETE FOR WATER TESTING PURPOSES



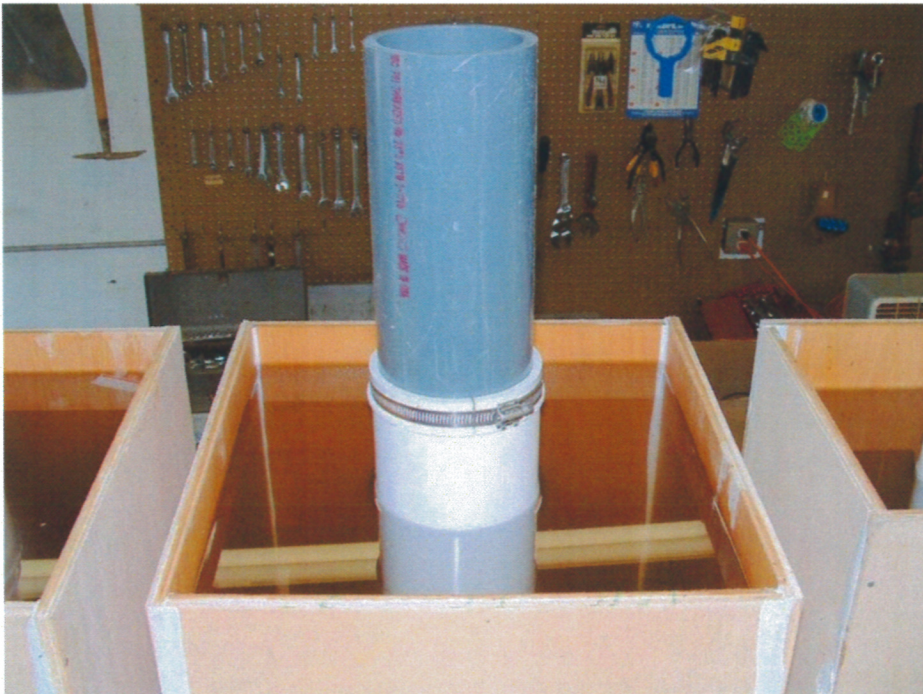
**PHOTOGRAPH 8**

3/4" PLYWOOD JOINTS ARE SEALED WITH A WATERPROOF CAULK TO PROVIDE A 36" HEAD WATER TEST LEVEL



**PHOTOGRAPH 9**

AFTER SEVERAL HOURS, SIGNS OF WATER SEEPAGE WAS NOTED.  
TEST WATER WAS ADDED TO MAINTAIN THE 36" WATER MARK



**PHOTOGRAPH 10**

OBSERVATIONS SHOWED A UNIFORM STATIC WATER PRESSURE OF 1.3  
PSI WAS MAINTAINED WITH NO WATER LEAKAGE OBSERVED WITH ALL  
SIZES OF WATER GUARD SLEEVES AFTER 72 HOURS OF TESTING