



April 5, 2010
File No. 5911

Roger Cox
Abesco, Inc.
5851 Florin-Perkins Road
Sacramento, CA 95828

Subject: TUF-1 Product Testing

Dear Roger,

On 3/31/2010, three pipe stands used in the assembly of the TUF-1 Permanent Foundation System (PFS) were sampled from the current stock at Abesco Corporation for testing.

One of the pipe stands was tested in the vertical axis. The test was performed with the pipe stand fully extended to its 36" adjustment holes and pinned with a zinc-coated 1/2" diameter mild bolt and nut. The load was taken to the point where the assembly would no longer accept additional force. The maximum sustained load (MSL) was 12,852 lb-force. At that load, the mode of failure was in the 1/2" mild bolt which failed in shear at its projection through the telescoping pipe sections. In the shearing actions of the pipe segments on the bolt, the shear resistance elongated the holes in both pipe sections.

An inspection of the pipe stand revealed that no other damage occurred outside of the areas outlined above. The stand is welded together at the top plate and the base plate to the respective telescoping pipe sections, and at the 2"x6-1'2"x3/32" braces at the base plate. The welds are acceptable per AWS Table 6.1 Visual Acceptance Criteria and the load test did not stress these welded connections appreciably.

The following formula gives the Safe Working Load (SWL) for this pipe stand with a factor of safety of 2:1 factored in:

$$SWL = P(\text{load}) \div 2 = 12,852 \text{ lb} \div 2 = 6,426 \text{ lb-force}$$

The allowable load on this TUF-1 PFS is 6kips in the vertical axis, and this test satisfies that acceptance criteria.