PRESSURE TESTING OF NEW WATER SUPPLY PIPEWORK

Introduction

The Water Supply (Water fittings) Regulations 1999 require that all new water systems both above and below ground (inside and outside buildings) shall be tested hydraulically prior to commissioning.

For external below ground pipework where the supply pipe is newly installed and there are no joints on the supply pipe other than the connection to the communication pipe, Essex & Suffolk Water will not require an additional on-site pressure test and will accept the pipe manufactures test certificate or pressure guarantees.

It should be noted that Essex & Suffolk Water do not guarantee pressures in their water mains and pressure can vary quite substantially over a 24-hour period.

Industry standards

The test pressure and method shall be determined by the designer using recommendations given in relevant industry guidance, for example:

BS EN 805 (Installations outside buildings)
BS EN 806 (Installations inside buildings)

All testing methods should be completed in a manner that will not permit the contamination of the public water main.

The method will vary depending upon the nature of the pipework. Those systems with plastic pipes need to make allowance for the expansion in the plastic material caused by the pressurisation process.

Certification for testing

All pressure testing work should ideally be carried out by an industry approved WaterSafe plumber. The pressure test results must be certified by the installer as meeting a relevant standard with the results recorded using a calibrated data logger. The certificate and data logger results will need to be forwarded onto Essex & Suffolk Water for approval.

When a WaterSafe plumber is not used, Essex & Suffolk Water may ask to witness the pressure test procedure.

Following any pressure test, a disinfection regime must be carried out supported by analytical testing (see guidance note 4).

Examples of test method

The designer will need to determine an appropriate pressure testing method for the installer to follow:

TEST METHOD FOR PIPEWORK (RIGID PIPEWORK)

Water loss methods

Test A – volume drawn off

1. Raise the pressure gradually to System Test Pressure (STP)* and maintain for at least **one hour** by pumping if necessary.
2. Disconnect the pump and do not allow any further water to enter the pipework and leave for at least **one hour**.
3. Measure the reduced pressure and then restore to STP.
4. Draw off water until the measured reduced pressure is achieved.
5. Measure the water drawn off, as the water loss value.

Test B – volume pumped in

1. Raise the pressure gradually to System Test Pressure (STP) and maintain for at least **one hour** by pumping if necessary.
2. During the test period, measure by suitable means the volume of water pumped in to maintain STP. This will be the loss value.

Using either test, if the water loss after the first hour does not exceed the allowable water loss value** the test is considered a pass.

Pressure loss method

1. Raise the pressure gradually to STP.
2. The length of the test should be at least **one hour** with a regressive tendency for pressure loss.
3. The pressure loss for rigid pipework (refer to BS805 for all pipe materials) shall **not exceed 20kPa**.

If after the first hour the pressure loss does not exceed 20kPa, the test is considered a pass.

If the loss exceeds the value specifies or faults identified, the system needs to be examined and any issues rectified as necessary. The entire test procedure will need to be repeated.

*** The STP will need to be determined by the designer.**
**** The allowable water loss to be determined by the designer.**

TEST METHOD FOR PIPEWORK WITH VISCO-ELASTIC BEHAVIOUR (PLASTIC PIPEWORK)

Phase 1

1. Flush and vent the pipework to atmosphere.
2. Allow the pipe to relax for **60 minutes**.
3. Make sure no air enters the pipework.
4. Pressurise the pipework to the System Test Pressure (STP)* in the less than **10 minutes**.
5. Maintain the STP for **30 minutes**.
6. Leave the pipework for **60 minutes** to allow for creep (expansion of the pipework).
7. Measure the pressure. If the pressure has dropped by more than 30%. This phase will need repeating.

*** The STP will need to be determined by the designer.**

Phase 2

1. Rapidly reduce the pressure by 10 – 15% of STP.
2. Measure the removed volume of water. This should not exceed the allowable water loss**.

**** The allowable water loss to be determined by the designer.**

Phase 3

1. The rapid reduction in pressure from the last phase, will have led to contraction of the water pipe.
2. Observe the pressure for **30 minutes**.
3. The pressure curve should be upwards, meaning that the pressure has increased.
4. In the case of doubt – continue the test for up to **90 minutes**.
5. An upwards curve will indicate a ‘pass’ of the entire testing procedure.