Roof & Building Leak Detection & Prevention

GUIDANCE & INFORMATION NOTE NO. 9

SIMULATED RAINFALL TESTING

Rainwater should not penetrate through any element of the building fabric and manifest internally as a leak. Also, it should not partly penetrate the fabric where it could cause damage, such as, rot or corrosion.

Rainwater may penetrate through the roof, walls or glazing in one or a combination of different mechanisms, including:

- Gravity
- Pressure difference
- Air bourn
- Kinetic
- Surface tension
- Capillary action

Gravity is the most common mode or mechanism of water penetration followed by pressure differences. Both these can result in large volumes of water manifesting internally. The others typically only allow intermittent or small flows of water into the building.

Roofs and walls should be designed and installed so that they are weather tight (watertight) under all prevailing weather conditions. However, windows and doors may not be weather tight under all conditions and are designed only to be weather resistant to a certain level and some leakage through them may occur under certain weather conditions.

Simulated rainfall testing or water penetration testing involves wetting a component of the building fabric and monitoring the interior for water ingress. A coloured tracer can be incorporated in the water to facilitate identification of the leakage pathways. The test is undertaken by pouring or spraying water at various intensities to simulate different rainfall conditions onto a component of the building, such as, a cable penetration through a wall.

Severe or prolonged rainfall can have intensities of over 75mm per hour. It is estimated that spraying mains pressure water for half-an-hour onto a component simulates several hours of heavy and prolonged rainfall.

By systematically and methodically testing each component on the area above or by a leak the cause or causes of it can be identified allowing targeted and effective repairs to be undertaken.

Tyrrell & Jenkins Consultancy (TJC) offer a range of services, including:

• Electronic Leak Testing • Leak Investigations

• Floor & Roof Vacuum Dewatering.

• Thermal Imaging. • Expert Witness.

TJC is an independent specialist Roofing Consultancy and Testing Services Company. We work throughout the UK providing non-destructive electronic leak testing, building envelope leak investigations, independent, specialist roofing technical advisory services to main and roofing contractors, building owners and developers in both the commercial and domestic markets. The company offers an extensive range of testing and investigative surveys that can quickly and accurately identify water entry pathways into and areas of entrapped water within a flat roof construction.

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