



STANGERS

WATER SEEPAGE AND LEAKAGE INVESTIGATIONS

Water Seepage

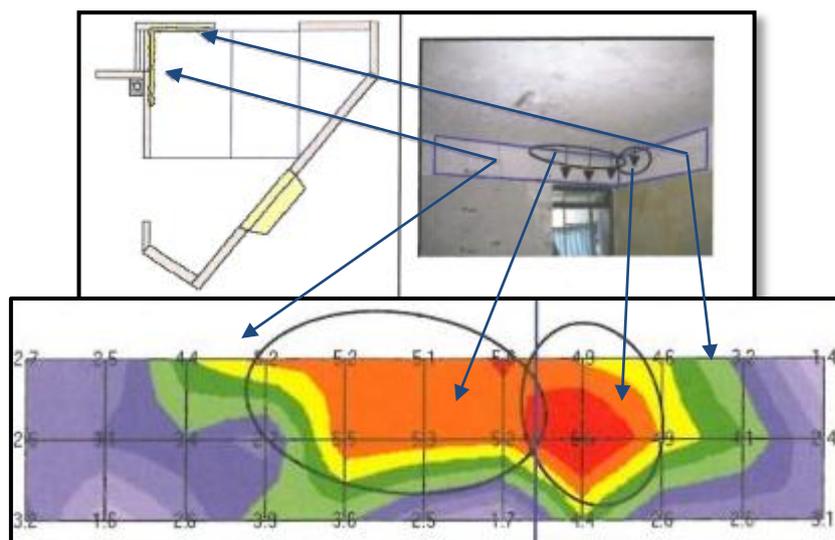
Water seepage causes damage to structures and its contents. Reinforcement corrosion, delamination, accelerated aging and increased maintenance costs are all serious concerns. A water seepage investigation to locate the source of the seepage will reduce future damage to the structure and reduce maintenance costs. There are many reasons for water seepage/leakage in buildings, some cases are caused by defective water pipes, sanitary fittings or drainage pipes. Water seepage/leakage may come from dilapidated pipes in adjacent flats or even from inside the same flat. It may also be due to water seeping through common areas, such as the roof or external walls due to poor workmanship or inadequate design. If water seepage/leakage is found a proper investigation of the cause needs to be carried out.

MICROWAVE MOISTURE SURVEYS



A number of tests can be used to assist in reaching proper conclusions when conducting a comprehensive water seepage or leakage survey. We can use Microwave Moisture Scanning, StructureScan Radar, Acoustic Detection, Pressure Tests, or Fluorescent Dye Tests.

The method of Microwave Scanning is shown in the picture on the left, Microwave Scanning utilizes a wide-range of frequency transmission to detect water present in the concrete. Using a different electromagnetic wave transmitter with different specific depth of detection and step up of the different Building Material Parameters, the distribution of water molecules can be accurately detected by the device.

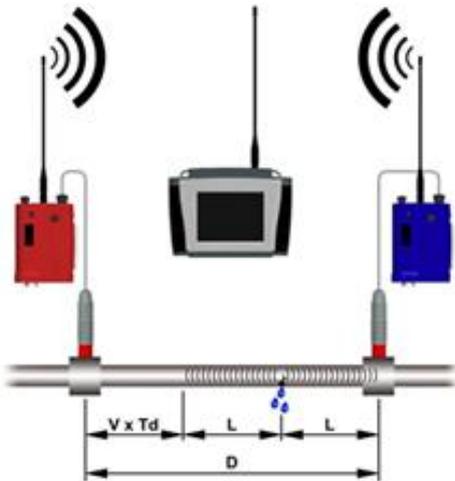


Microwave scanning results are shown by a Microwave Moisture Diagram and number indexes as a ratio to normal water molecule distributions. Red shows areas with comparatively higher water accumulations, on the other hand, light blue-white colour shows areas with comparatively lower water accumulation.



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ACOUSTIC SURVEYS



When a liquid under pressure escapes from a pipeline it creates a sound pressure wave (leak noise) which travels along the pipe from the exit point. The velocity at which the sound travels within the pipe depends mainly on the pipe diameter and material. Most leak correlators will use two sensors which are attached to the pipe on either side of the leak point.

To perform a correlation the user will input the distance between the two sensors, and the pipe material (if known) into the base unit. Each sensor records the sound and transmits this data to a base unit, which measures the time difference between the leak noise signals arriving at each sensor. From this data, the base unit can calculate the precise location of the leak.



Leakage Detection Surveys employing Acoustic Methods can locate leaks accurately without interrupting the water supply system. Cable/Pipe Locator, Leak Noise Correlator – LNC and Listening Devices – Electronic Ground Microphones and Mechanical Listening Stick will be used for the survey. If the result from the LNC survey indicates a spike, a further leak detection survey will be carried out to verify the suspected leakage. In case of the spike being found in the connection with other branch pipes, further leak detection surveys will be performed to confirm the full extent any leakage.

We can also use other techniques to verify source of water seepage and leakage such as StructureScan Radar and infrared thermography. These are described further in other leaflets.

STANGER ASIA LIMITED

705-706, 7/F., Fuk Shing Commercial Building,
28 On Lok Mun Street, On Lok Tsuen, Fanling, New Territories, Hong Kong.

Tel: (852) 2682 1203

Fax: (852) 2682 0046

Email : stanger@stanger.com.hk

Website : www.stanger.com.hk