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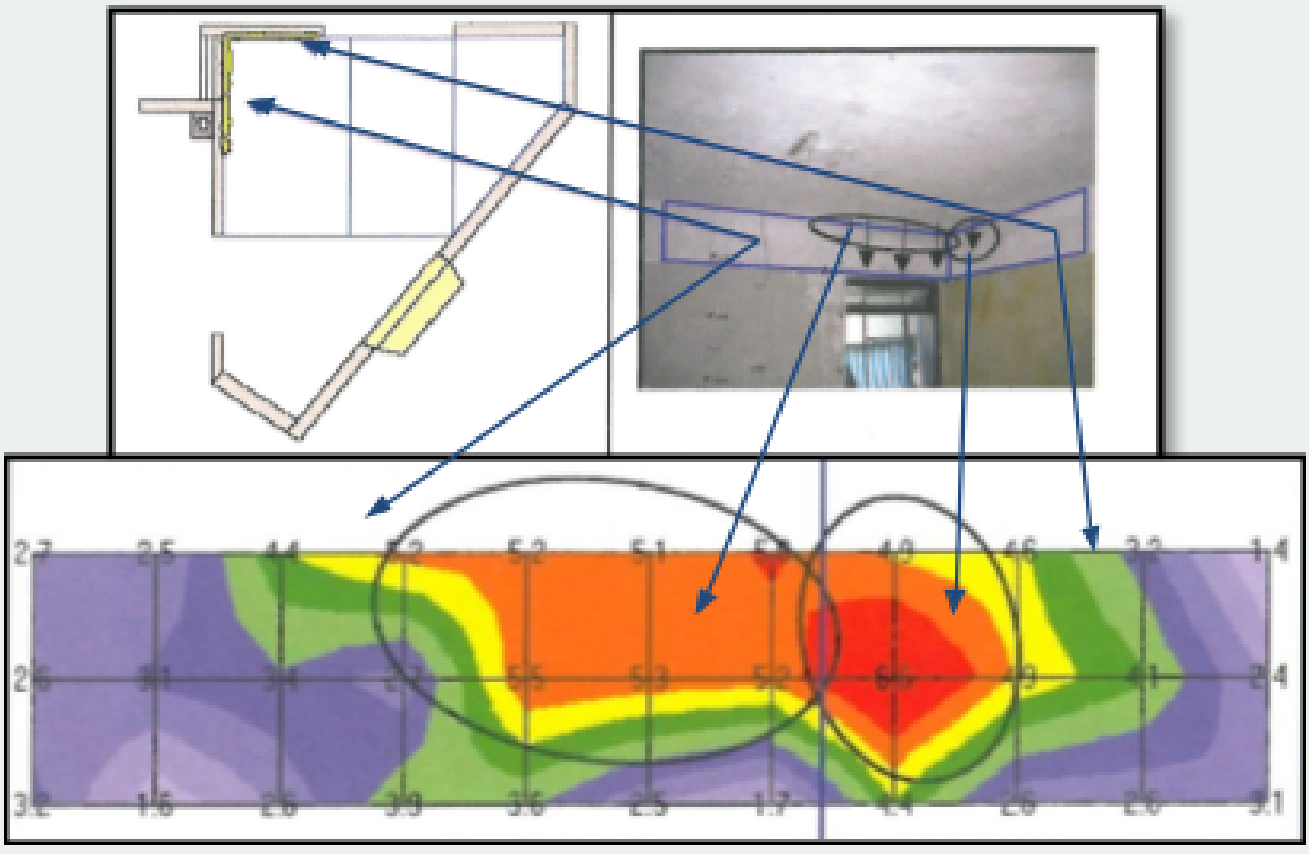
Water Seepage

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.

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.



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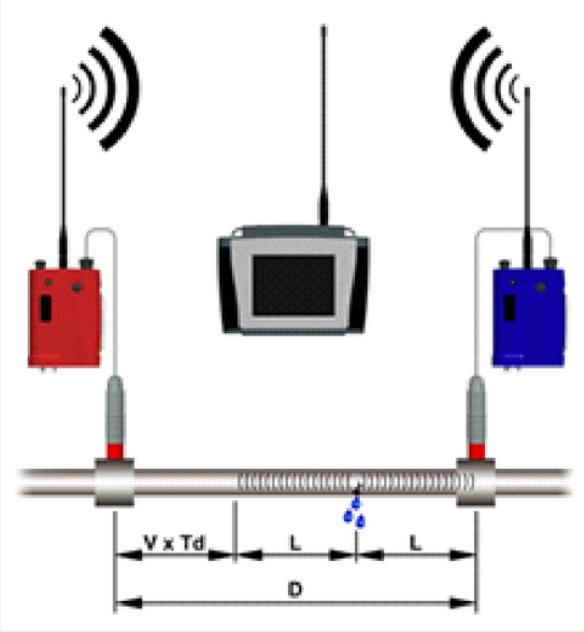
Microwave Moisture Surveys

The method of Microwave Scanning is shown in the picture on the right. Microwave Scanning utilizes a wide range of frequency transmission to detect water present in the concrete. Microwave moisture surveys can detect moisture levels in the structure and a 2-D or 3-D image can be obtained by processing the results to show the moisture distribution inside the structure.

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 that 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.



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Leakage Detection Surveys employing Acoustic Methods can locate leaks accurately without interrupting the water supply system. A Cable/Pipe Locator, Leak Noise Correlator – LNC and Listening Devices – Electronic Ground Microphones and a 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 of any leakage.

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

Tel: (852) 2682 1203
Email:
stanger@stanger.com.hk

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