

*(Note to user. This is a word document. Delete/amend variables in brackets and/or italics as required. Copy and paste body text as required)*

## **Specification for Water/ Liquid Leak Detection system**

### **LEAK DETECTION SYSTEM**

#### **1. General requirement**

To provide a liquid leak detection and locating system to give the earliest warning of a leak

- *from (Mains Cold Water / Chilled Water / Domestic water / Heating / Sprinkler Pipes, Condensate Drains, Storage Tanks, Chemical and Oil Lines etc) as detailed in the schedule and drawings.*
- or - *which may enter or affect the (areas, rooms etc.) as detailed in the schedule and drawings.*

The system shall

- *(Specific leak location). Provide an alarm giving an accurate location of a leak at a specific point or zone. \**
- *(General, basic leak detection). Provide a general alarm indicating a leak has occurred somewhere/ anywhere within the detection network area. \**

*(\* there are significant cost differences between the two methods. The application and perceived degree of risk will determine level of accuracy required and type and cost of system to be installed)*

The system shall comprise a network of sensing devices connected to *(centrally / locally / remotely located)* control panel(s) as indicated in the schedule and drawings. The sensing devices should include *water and/or oil sensing cables, water and/or oil sensing probe/point devices and any other type of liquid sensing device such as sensing pads, pipe-in-pipe probes, tundish/overflow type sensors* as may be deemed appropriate to fully comply with the requirements of the project. Whichever type of sensor is used It is recognised that liquid must touch a sensing device for an alarm to be activated.

The leak detection system will continuously monitor the network of sensing devices and give an alarm in the event of detecting a leak or system/sensing device malfunction, damage or disconnection.

A control panel will be capable of monitoring up to *(5000m)* of sensing cable and/or *(500 no.)* point/ probe sensors or a combination thereof.

The length and/or number of sensing cable or devices and their installation disposition shall be

- *as detailed in the schedule and drawings*
- *as recommended by the specialist sub-contractor or supplier in accordance with the general requirement set down in the schedule and drawings*

## Andel Floodline Leak Detection Specification

The system shall be capable of

- *reporting the location of a leak to a sufficiently accurate position to enable the operator to locate and identify the activated section of detection cable, or individual (or group of) probe device(s) quickly and accurately. \**
- *reporting the presence of leak in within a general area. \**

*(\*also see note above)*

A control panel shall be capable of providing the level of accuracy of leak detection required. This may be achieved by applying a contiguous number of separately reporting zones of appropriate length or by a system which will report the position of a leak as a measurement of metres along the defined route of a sensor. Wherever possible the allocation and installation of sensor lengths or zones shall be arranged to coincide with defined areas or "land-marks", individual rooms, partition walls or other easily identifiable features. This is to facilitate speedy and positive leak location.

### **2. Leak Detection sensor Cable/Tape**

Where local codes and regulations require, the sensor cable shall be made from Low Smoke and Fume – Zero Halogen (LSF0H) materials for smoke reduction and low toxicity. (This requirement must be checked with the main contract / project management team prior to acceptance of any tender.) The cable shall be made from durable, non-deteriorating materials and have no exposed metallic parts. It shall not be adversely affected by the build up of dust or other dry dirt / debris.

The sensor cable shall be available in rolls for cutting and terminating on site or in pre-connected lengths.

In the event of damage or irrevocable contamination the affected part of the cable should be capable of on-site repair. It should not be necessary to replace the whole length.

#### **2.1 Application**

##### **Leak detection cable**

- *Installed under the raised floor in an open wave/loop or "serpentine" pattern backward and forwards across the floor*
- *Installed to provide general coverage of the area. Each "leg" or "loop" to be at (1, 2, 3, 4...) metre pitch or spacing .*
- *Installed under the raised floor routed (around the perimeter of the area) (in front of any A/C units, pipework etc. to ensure a "barrier" or line is provided over which liquid must pass prior to passing into the critical area*
  
- *in drip trays suspended below pipework*
- *attached directly to individual pipes (outside / inside any lagging or insulation)*

## Andel Floodline Leak Detection Specification

The cable will be fixed to the floor at approximately 3 metre intervals and at every change in direction. Acceptable fixings will be *drilled and plugged flame retardant nylon "P" clips, self-adhesive clips, cold adhesive/hot-glue clips, hammered or pin-plugged cable clips or other approved fixing*. Adhesive fixings will only be used where the floor finish is clean, stable and non-dusting. Only self-adhesive, cold adhesive or hot-glued clips will be permitted in drip trays.

(Where hot-glue is used the application gun must only be of the gas powered catalytic sort and have no exposed flame.)

Where attached **inside pipe insulation** the detection cable will be taped or tie-wrapped at a maximum 1 metre intervals.

Where attached **outside pipe insulation** the detection cable will be taped or tie-wrapped at a approximately 150mm intervals or sufficient to prevent sagging and maintain constant contact with the pipe surface.

Identification/warning tags will be attached to the cable every 3 - 4 metres. Tags will state purpose of cable and will show any relevant information (such as zone number or distance reference) to confirm the location of that particular part.

*Special Junction Boxes (or other device) will be used for zone changes and connection to leader cables. To confirm location the Junction Boxes will be labelled showing its reference number and the preceding and following zone numbers.*

*Appropriate connectors will be used to join separate cable lengths and leader/ jumper cables. To confirm location the connectors will be labelled showing any reference number and relevant location information.*

### **3. Leak Location**

The water detection system will be applied and mapped in such a way as to make the part of the sensor network detecting the leak easy to identify and physically locate. This may be achieved by sub-dividing the sensor network into a series of separately reporting zones or by a system which, uses a sensor cable which will report the location of a leak via a distance measurement displayed on the control. In any event the information the distance measurement or zone displayed by the control panel shall be cross-referenced to a map, chart or diagram which shall clearly show the routing of the sensor network, its relationship to the building layout and any fixed zone positions or cumulative distance marks.

Any reasonable leak location and display method or technique will be considered as long as it can be demonstrated to meet the project requirements.

### **4. Standards.**

## Andel Floodline Leak Detection Specification

The leak detection cable shall be:-

- supplied in rolls for cutting and jointing according to site requirements or
- supplied as pre-connected standard lengths.
- capable of repeated re-use - (wetting then drying).
- (if damaged or irrevocably contaminated) capable of being spliced/ jointed or repaired on site with the minimum of wastage.
- robust construction - resistant to moderate physical abuse
- resistant to temperatures up to 100°C
- no exposes metal parts
- not affected by dust and debris
- capable of being attached directly to bare metal surfaces or pipes without "shorting" or other interference.
- capable of being monitored along its entire length for damage or disconnection.

### **5. Point Sensors and other devices**

The system will be capable of using other types of water/liquid sensing devices (in addition to, and/or instead of, detection cable on the same control system) as required and where detection cable is unsuitable.

These may include:

- Point Sensors (plus any protective Guard Plates and mounting devices)
- Pad Sensors
- Oil Sensors
- Pipe-in Pipe (Double containment) Sensors.
- Tundish / Overflow type sensors

Unless specifically instructed in the schedule the specialist contractor may put forward an alternative proposal using these or any other type of specific sensing device which they consider to be appropriate given the requirements of the project.

This must be in addition to a proposal adhering to the original requirements of the schedule and must clearly identify any specific cost, efficacy, functioning or operational advantages .

### **6. Leader Cables**

Leader cables will be LSF Zero Halogen double insulated, multi-core, 7/0.2 strands (or solid equivalent) or similar. All leader cables must be monitored along their entire length for damage or disconnection.



Andel Floodline Leak Detection Specification

The water leak detection system shall be as manufactured by:



Tel: +44 (0)191 490 1547

Fax: +44 (0)191 477 5371

Email: [northernsales@thorneandderrick.co.uk](mailto:northernsales@thorneandderrick.co.uk)

Website: [www.heatracing.co.uk](http://www.heatracing.co.uk)

[www.thorneandderrick.co.uk](http://www.thorneandderrick.co.uk)