**How to Decode the Naming System**

**Used for the**

**Concrete Embedded Sensors**

**In**

**FEIT Building 11**

There are two types of sensors embedded in concrete in various locations around the new FEIT building 11.

The two types of sensor include:

* Ion Selective Electrode
* Strain Gauge

To ease identification and location of each sensor, a unique naming convention has been implemented. No sensor identifier has been used more than once.

The sensors can be located in a number of locations within the building including:

* Footings

1. Pad footings
2. Strip footings

* Slabs
  1. Pre-stressed
  2. Reinforced concrete
* Beams
  1. Pre-stressed
  2. Reinforced Concrete
* Columns
* Shear Walls
* Bondek

The sensors are located in these positions on the following building floors

* Footings
* Basement 4
* Basement 3
* Level 00
* Level 03
* Level 06
* Level 12
* Level 13

The naming convention includes information that will allow a user to determine:

* Type of sensor
* Level and specific location
* Unique sensor number
* Any extra positioning information such as location within a group of sensors

An example of a sensor name might look like the following:

**rSG.12SW.135C**

The various bits of information are separated by the dot, and can be decode as shown:

r: indicates the sensor is collecting rainflow data

SG: determines type of sensor. In this example SG means “strain gauge”. For the ion selective electrode the letters “CI” are used

12SW: indicates the sensor is located on level 12 within a shear wall (SW)

135: is the unique sensor number and is never used twice

C: indicates the sensor is located centrally between top and bottom of the shear wall. The letter “T” is used to locate the sensor at the top of the shear wall, and the letter “B” is used to indicate location at the bottom of the wall.

The letters “T” and “B” are also used where sensors are located in a column. Note, that a centred sensor is not used in columns.

Another example might be:

**SG.13S.163L**

and is decoded as:

SG: determines type of sensor. In this example SG means “strain gauge”. For the ion selective electrode the letters “CI” is used

13: indicates the sensor is located on level 13

S: indicates the sensor is located within the slab

163: is the unique sensor number and is never used twice

L: indicates the sensor is located longitudinally, that is, parallel with the long axis of the slab. The letter “T” is used to indicate the sensor is located transverse to the long axis of the slab

And finally another example:

CI.FTSF.173

Where:

CI: refers to an ion selective sensor

FT: refers to a location in a footing

SF: refers to a strip footing (note all sensors placed in strip footing are placed along the long axis of the strip footing)

173: is the unique sensor number

The sensors are routed to data collection points on each floor. The data collection points are named using a convention similar to the sensors, such as:

**ESDB3.1**

which translates as:

ESD: embedded sensor datalogger

B3: basement level 3

1: datalogger 1

The following is a list of the letter descriptors used in the naming convention

SG: strain gauge

CI: ion selective electrode

FT: footing

SF: strip footing

SW: shear wall

S: slab

T: top (or **transverse** if used after the unique sensor number and is located in a slab)

C: column (or **centre** if used after the unique sensor number)

B: bondek (or **bottom** if used after the unique sensor number)

L: longitudinally

ESDB: embedded sensor datalogger

Additional information on sensor location

* sensors which are located in column are grouped in pairs. Sensors are located at the extremities, that is, top and bottom, of the column and in line with each other
* sensors located in shear walls are grouped in threes. Sensors are located at the extremities, as per the columns, with the third sensor located at centrally between the top and bottom sensor
* distances between sensors located in columns and shear walls are recorded in a separate document.
* Sensors are located in the concrete as close to the face of the finished surface as possible, depending on the steelwork
* data collection points are located in various locations throughout the building (see drawings)
* sensors located in bondek, have one sensor mounted to the steelwork and the other sensor located on the bondek