Cost-effective Water Metering Solution

Introduction

Blue Saddle Innovations (BSI) provides a water-metering solution which brings together the advantages of both wired and Radio Frequency (RF) water metering solutions. The BSI water metering solution is able to integrate into two scenarios: apartment blocks and or a conglomerate of apartment blocks. Our system is able to meter hot and cold water usage. Cost recovery on hot water is an important consideration where centralized heat pumps are in service in apartment blocks. BSI's water metering solution allows the landlord to cost hot and cold water separately, thereby recovering the cost of electricity used to heat water at a centralized point.

In order to reduce costs BSI has selected water meters with a pulse output vs proprietary meters that are not able to integrate into any other manufacturers' remote monitoring system. Pulse output meters are the most popular meters on the market and are readily available from any supplier. We have attached a datasheet for you to evaluate the meters we provide. We are also able to integrate the BSI system to existing pulse output meters. Our Clients are welcome to supply their own pulse output meters from their chosen supplier.

Concept

In apartment blocks, units are typically situated along a passage as depicted in Figure 1. Each floor is connected by service ducts which are used to distribute water to each of the apartments. These ducts usually fall between two adjacent apartments and are able to house the hot and cold water meters for both units.

An electronic metering device (EMD) will monitor the electronic outputs from the water meters in order to determine hot and cold water usage for each apartment. The EMD will contain a RS485 bus that will enable the EMDs on each floor to be daisy chained from the top floor all the way to the ground floor, with cabling running vertically through each of the service ducts. The cabling will also supply power to each of the EMDs. To further reduce costs the EMDs are designed to monitor the usage of between 4 to 6 water meters (i.e.2 to 3 apartments). The reading from each water meter is transferred, along the RS485 bus, to a building concentrator.

A building concentrator monitors the RS485 bus from each of the ducts. The building concentrator will have battery backup to eliminate system down time in the event of a power outage.

The water usage from each of the connected water meters will be stored locally on each of the EMDs prior to the values being periodically transferred to the building concentrator. This is done for purposes of redundancy. A server in the apartment block will access the records on the building concentrator periodically. However, in a conglomerate of apartment blocks (see Figure 2), with central administrative offices, each apartment block will not have a server. Instead, the individual building concentrators will transmit the data via a RF transceiver to a single server (data hub) that will be located at the centralized office.

The managing agent, building manager or centralized office will have credentials to log into the server/s to draw usage figures for each water meter. From here the Client can export the data for analysis and billing.

For a small fee per water meter, Blue Saddle Innovations offers off-site monitoring, where we will automatically transfer the data from the Client's site to the BSI servers. From these servers, BSI will analyse the data, compile reports and bills and email these to our Client at the end of the billing period. The BSI servers are located at a highly reliable data centre ensuring redundancy and 24/7/365 access. An exception reporting module can also be added to alert the Client via sms or email in the case of irregular readings which could indicate faults or burst water pipes.

Conclusion

The Blue Saddle Innovations water metering system is cost-effective and robust from a hardware standpoint and aids the full recovery of water costs in a centralized water heating set up. The system can be integrated into existing buildings, renovation projects as well as new building projects. It offers localized water-usage monitoring or hassle-free off-site monitoring.
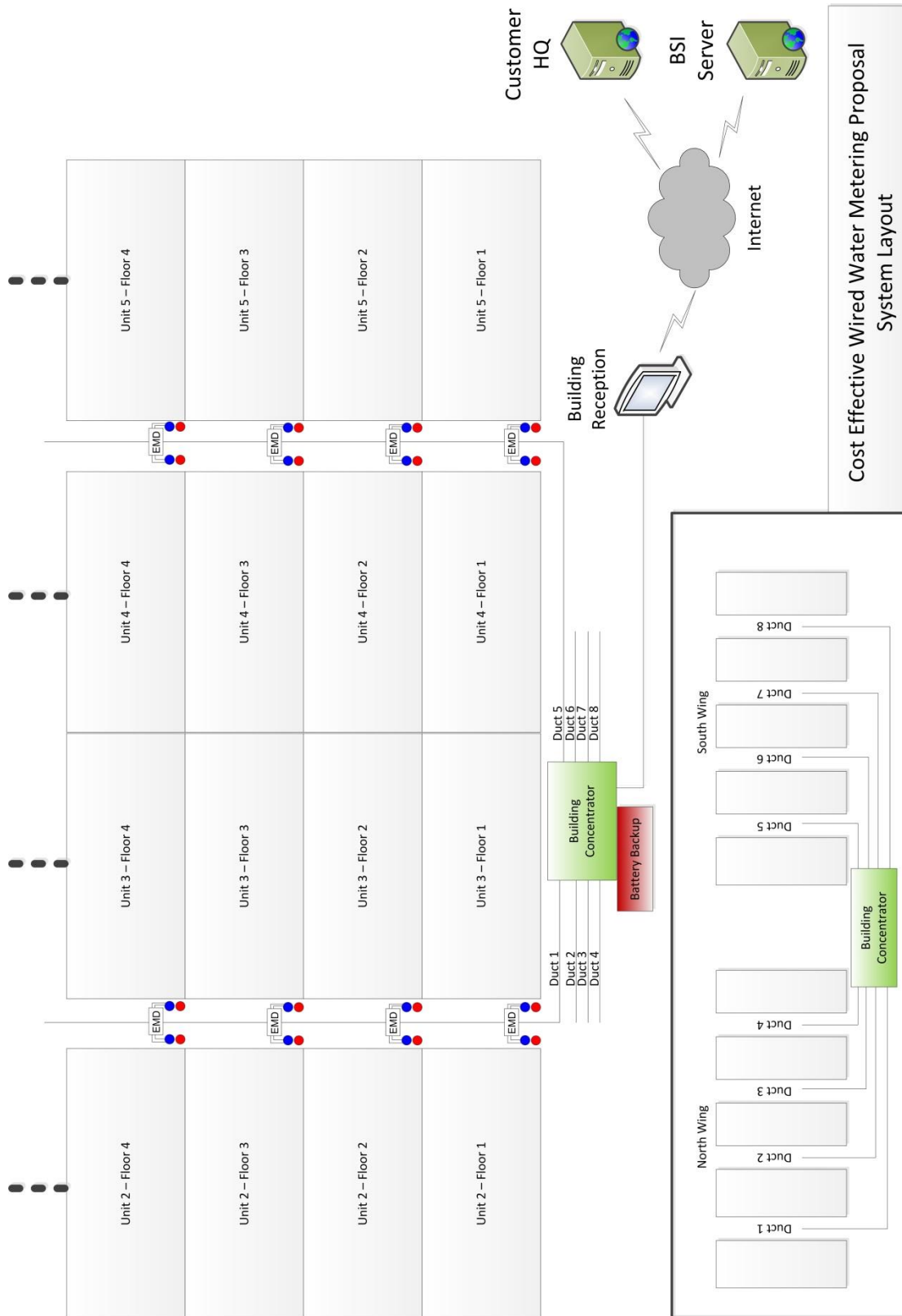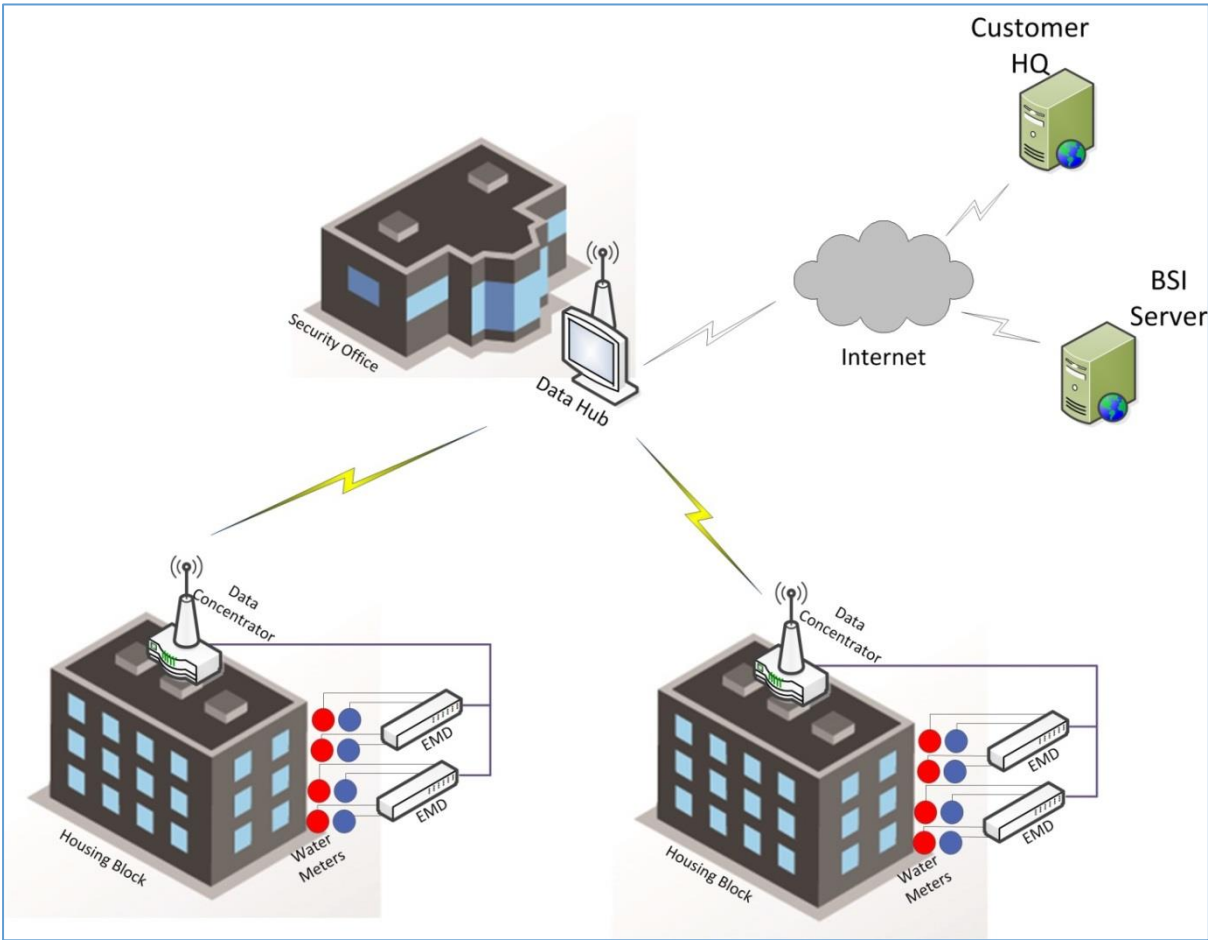
Figure 1. System Layout

Figure 2. Conglomerate of Apartment Blocks – System Layout