Sustainability Case Studies

ENERGY MANAGEMENT: PLANT ROOM INSULATION

The Challenge: Poorly Insulated Pipework

One of the most common causes of energy wastage in buildings is lack of insulation. This can include a lack of or poor loft insulation, through to uninsulated pipework. The plant rooms in Crombie Hall and William Guild, contained large areas of uninsulated pipework. These plant rooms were identified as a potential energy saving project by the Energy Management team in Estates.

The Solution: Identifying Appropriate Insulation

After measuring the exposed pipework in the Crombie Hall and William Guild plant rooms, insulation blankets were identified as the most cost effective solution. This option was chosen as much of the exposed pipework included valves and flanges that couldn't have been insulated through conventional methods

The Results: Significant Reduction in Wasted Heat

Insulation of the Crombie Hall and William Guild plant rooms was completed during 2016. By insulating 7.11m^2 of pipework in Crombie Hall, it is expected that the quantity of natural gas required to heat the building will reduce by 1.54% and save 6.12 tonnes of CO_2 emissions. The insulation of 3.51m^2 of exposed pipework in the William Guild plant room is expected to reduce the volume of natural gas needed to heat the building by 2.98% and save 8.41 tonnes of CO_2 emissions.
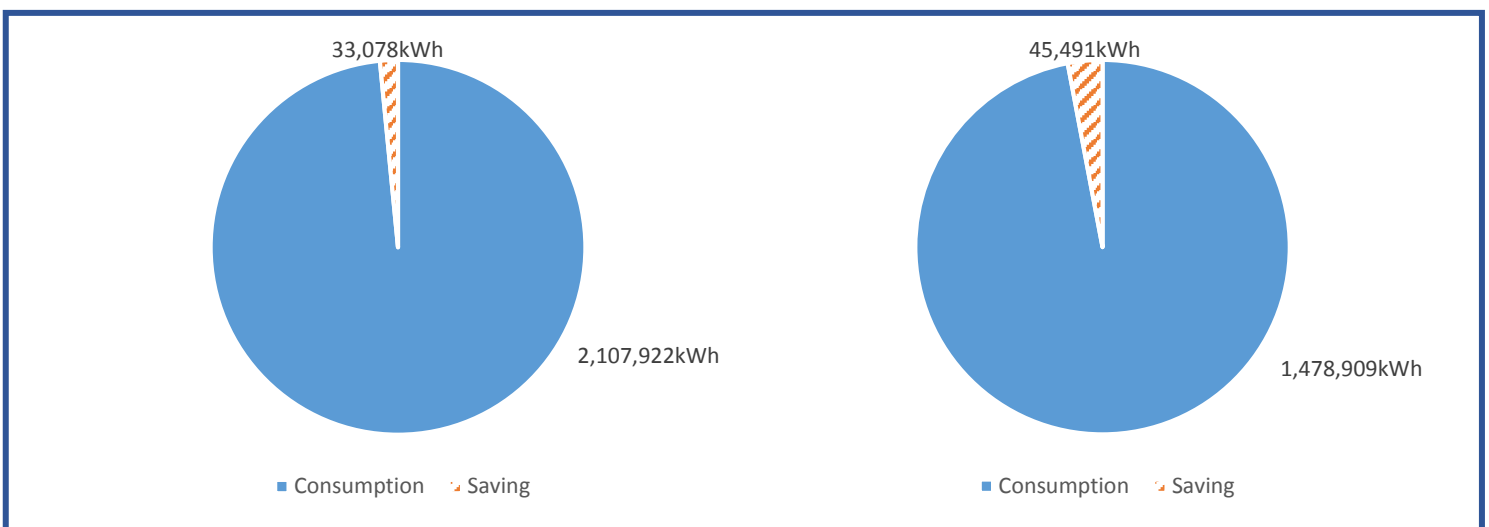

Figure 1: Crombie Hall Natural Gas Consumption (kWh)   **Figure 2: William Guild Natural Gas Consumption (kWh)**

Despite the relatively small reduction in natural gas consumption, these projects will result in estimated annual savings of £3630. The William Guild project will be paid back in less than 13 months and the Crombie Hall project will be paid back in just over three years.
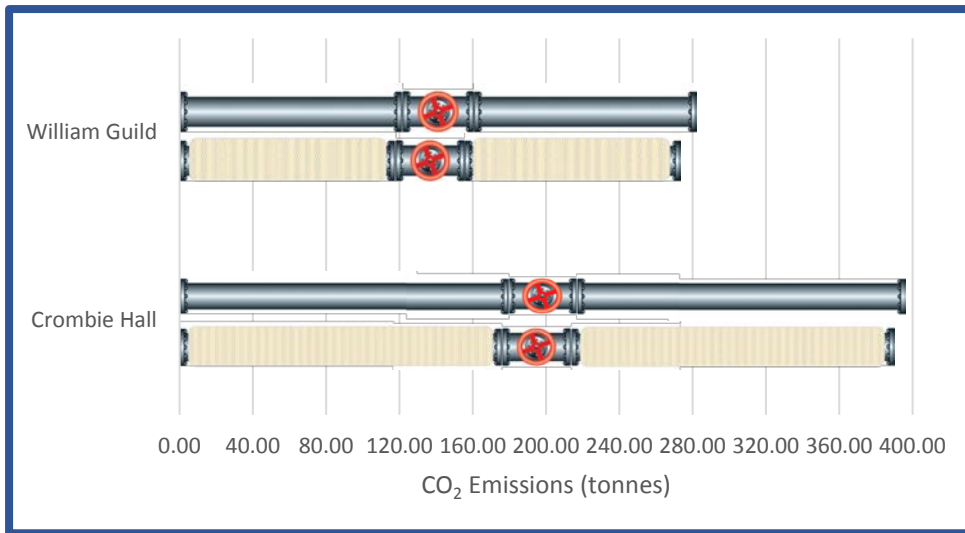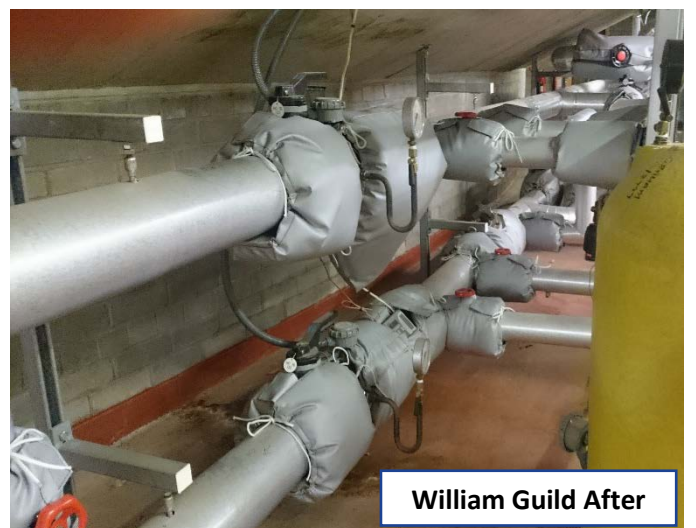
Figure 3: Heating Associated CO_2 Emissions (tonnes)

Crombie Hall Before

Crombie Hall After

William Guild Before

William Guild After

Lessons Learned

Insulation is often removed for maintenance and not replaced. Using custom made fastenings for the insulation, it is now easier to remove and replace during routine maintenance.

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