

## Dumfries & Galloway College

### High-efficiency burners project



#### Summary

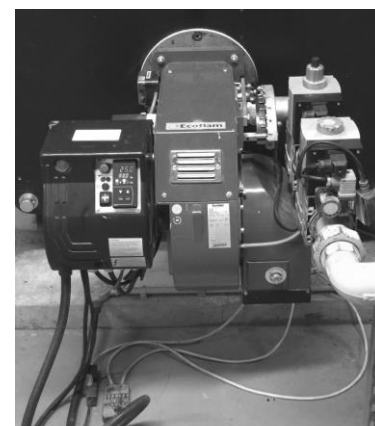
Dumfries & Galloway College decided to take its boiler burner technology to the next level to maximize energy efficiencies and reduce carbon. The results were more than they expected and they are reaping the benefits!

#### Our Goals

As part of our Climate Change Action Plan Dumfries and Galloway committed to reducing our carbon emissions by 20% for the end of the year 2019. A further challenge was to reduce our running costs for our equipment whilst linking in to a positive environmental impact.

#### The Approach

- Using our own industry experience we engaged with industry leaders in combustion management technology to undertake a study of our system and propose changes to ensure maximum efficiency was achieved
- [Autoflame](#) engineering specialise in combustion management; helping industry get the most out of there boiler systems using the most advanced technology
- Autoflame worked with us to advise on the best approach which was in two parts:
  - Part 1 was to replace our existing burners with new high efficiency burners incorporating micro modulating technology
  - Part 2 was to install Exhaust Gas Analysis units (EGA) which allows for automatic fuel trimming to ensure high efficiency is maintained
- The EGA also continuously monitors our stack emissions which meets the criteria of the which meets EU Emissions Directive 2017. It also automatically shuts down the boiler system should any of the emissions limits be exceeded which would show the College's commitment to a safer environment
- The College used its own Capital money to pay for this project as it was a clearly worthwhile with a 6-7 year payback based on projected savings



Before - old burner



After - new burner

Obstacles	Solutions
Funding for the project. High cost using up large part of College money	Evidence based savings showing quick payment meant the spend was justifiable given the social and environmental benefits of the project
Impact on students if boilers went down	Autoflame advised that the system would still be running as they would work on 1 boiler at a time. No impact to the student experience

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## Results

The immediate results were more than we anticipated.

**Staff & students happy:** we found that we actually gained better control of our heating system leading to a reduction in complaints from staff and students.

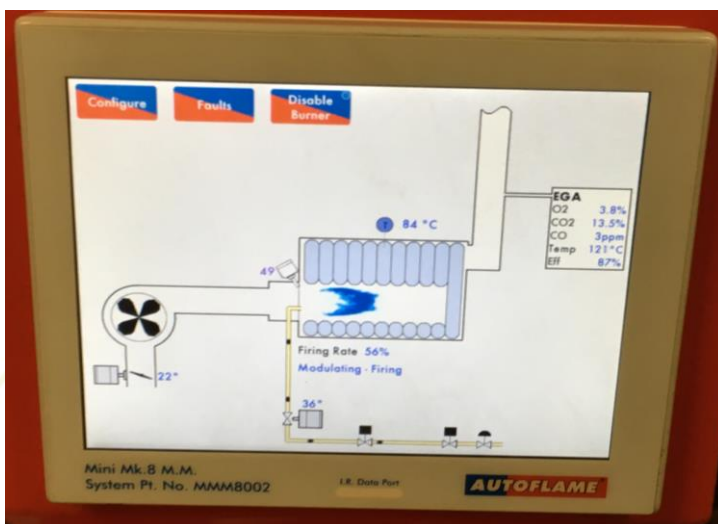
**User-friendly:** the system was easy to use therefore lesser experienced staff were able to see the operation of the boilers more clearly with the user friendly screens.

**Quick reaction time to problems:** the alarm function shows clearly any faults which meant quicker resolution, usually with no need to call an engineer to site.

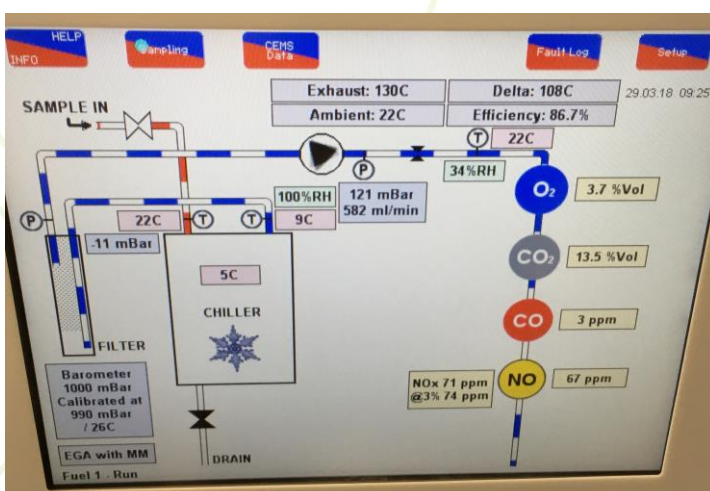
**Carbon reduction:** after 1 full year the results were in from the energy usage. It showed we had achieved a reduction in our gas use which total nearly £8,000 which was around 19% of our totals based on the previous year. This was by far in excess of what we had predicted which was around 12% in year one.

## Further Information

For more detail on this project please feel free to contact me on [curriew@dumgal.ac.uk](mailto:curriew@dumgal.ac.uk)



Picture showing new Micro Modulating screen. Shows exactly what is going on in the burner at that precise time



Picture showing EGA screen which sits at the back of the boiler. This monitors the emissions via a probe in the chimney stack.

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