



# Brixham Town Council

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**Town Clerk: Mrs Tracy Hallett**

<b>Report Number</b>	20-2021	<b>Date</b>	19.03.21
<b>Report Type</b>	Public	<b>Meeting</b>	Town Hall Committee
<b>Contact Officer</b>	Simon Hiatt Paul Boyd	<b>Job Title</b>	Admin Assistant Facilities Manager
<b>Report Title</b>	Town Hall Boiler		

## **Purpose of Report**

To update Members on the replacement of the Town Hall boiler and to consider any recommendations.

## **Boilers**

The boilers servicing the Town Hall are working at approximately 60% efficiency. In addition, one pump has broken and the system is reliant on the remaining pump.

There are two options available to the Town Council:

1. Replace the pump.
2. Replace the boilers to ones that run at a higher efficiency rate.

It is considered that given the age of the boilers and their poor efficiency, the best option is to replace the boilers.

In addition to replacing the boilers, the Council will need to consider a suitable control system. The control system was linked to Torbay Council and the Council paid a small service level agreement in order to access the heating controls. However, the system link between the Town Council and Torbay Council is broken and the heating is being turned on manually. There are two options to the Town Council:

1. Pay to repair the link with Torbay Council. This option only gives the Town Council the access to change the heating times and days, NOT the temperature for each room.
2. Pay for a new system control to be installed, giving the Town Council full control of its own heating system.

## Climate and Environment Policy

The Council has recently adopted a Climate and Environment policy and therefore this will be considered when approaching contractors for quotes.

## Regeneration Project

New boilers can be wall mountable taking up less space than the existing ones. Any recommendations will include the capacity to cope with increased need should the regeneration project proceed.

## Old Police House Boilers

The boilers servicing the Old Police House are also working at low efficiency. These boilers are unable to meet the current demands and the Town Council has purchased oil filled portable electric radiators. They therefore need replacing. However, the Town Council is awaiting a decision in respect of the Planning Application prior to deciding whether or not to proceed with the works and go out to tender. If the Council decide to go out to tender, the works will involve individual boilers for each flat. If the Council decide not to proceed, quotes will be obtained at a later stage to replace the existing boilers.

## Quote ONE

### Stronghold UK

Costs to provide labour and materials for works as detailed;

- Remove old boilers and dispose
- Install 2 new Vaillant EcoTEC 65kw wall mounted boilers
- New flue to be installed by Stronghold UK Ltd including flue pressure test to IGEM/UP/10 Edition 4 if applicable
- Remove old primary pumps and pipework
- Install new Plate heat exchanger. This separates the new boilers and protects the system
- New primary pumps built into new boilers
- Installation of new condense pipe associated pipework
- Solenoid and safety circuit as existing additional heat sensor only
- Open vented, allow to install pressure unit on primary side
- Install 5L dosing pot
- Insulate pipework
- Flush and dose system to Doc L spec
- Test, commission and register with building control
- Register boiler with Vaillant

Labour & Materials
<b>Total - £13,569 plus VAT</b>



Bowen Electrical (working in conjunction with Stronghold)

- new heating control system for brixham town hall
- to isolate and remove old bms controller
- to install new multi valve controller to boiler room and hub
- to install new wiring to suit new boilers including new emergency gas shut off system
- to install new room stats to each part of the building and set up
- to install new power supplies for signal repeaters throughout building
- to install new signal repeaters and set up
- to work with heatboss to setup and commission system
- to provide training and demonstration of system

Total Excluding VAT	£8,393.25
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\*See Annex 1 for case study

<b>Total Cost</b>	<b>£</b>
Boilers	£13,569.00
Control System	£8,393.25
<b>Total Net Price</b>	<b>£21,962.25</b>

**Quote TWO**

Just Gas

Quotation to supply and install a new Viessmann 100 cascaded quad 140kw heating system

Old existing heating system will be drained down safely, gas line will be tested for any problems before the boiler is safely disconnected, the two boilers will be removed from the property ready for the new installation.

New central heating Viessmann four boiler cascaded 140kw boiler system will be supplied and installed, presently your heating system requires 115kw at its maximum output, I have designed your heating system so in an emergency should one boiler break down, the system will continue to work until it has been repaired. The boiler units come with a 10 year full parts and labour guarantee, direct from the manufacturer.

All the new pipework in the boiler room (plus missing existing) will be insulated for frost protection and efficiency. A new commercial twin head pump unit to replace the two existing non- modulating pump units with a new fully modulating pump unit which will automatic turn down its power output when heating zones have been turned off, reducing your electrical power consumption. A new 4 zone programmable time clock, which can be remotely controlled with the weather compensation for control and comfort of the entire heating system will be supplied and installed. Your new boilers will have a new flue systems supplied installed via the external wall (existing roof outlet used for plant room ventilation) as per the appliance manufacturers instructions and in line with the main building regulations and the gas safe register.

The new boiler system will be connected to the existing central heating system and flushed through and chemically cleaned with a commercial Powerflush pump unit connected to each zone this is to remove all of sludge build up in the system, and the inhibitor will help prolong the life of the entire system. A new system filter is to be supplied and installed which has been specifically designed to combat the damaging effects of system debris and pollutants by capturing contaminants before they reach your boiler the unit sits under the boiler and has a powerful magnet witch captures system contaminants e.g. limescale deposits. Improves efficiency, protects boiler against damage, prevents blockages in radiators and reduces system noise and it also Increases the manufacturers parts and labour warranty. The Gas line to the boiler will be tightness tested and upgraded for the safe operation of the boiler. A new condense line is to be installed from the boiler to the drainage system.

Cost excluding VAT	£22,350.00
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## Quote THREE

### WEMco

The two existing boilers are approaching the end of their economic life, and are also relatively inefficient compared to modern condensing units. The existing Monodraught flue system will not be compatible with contemporary plant, and because of additions to the building over time, now discharges into a 'Courtyard' area. This does not comply with current IGEM regulations, and a new flue will be required to rise and terminate at high level.

The gas service is fitted with a drop-weight safety valve; this will require upgrading to a gas solenoid valve to meet current requirements. One of the boiler primary pumps has failed, and a new twinset is included within the schedule of works. The eight motorised valves that control heating to various areas of the building are believed to be in serviceable condition; these will be retained and their actuators re-fitted. We have included an optional price below to replace if required.

The existing open-vented heating top-up system is compatible with the proposed new boilers and will be retained. The existing Sigma 532 BMS has failed, and we have priced for a new BMS controller and interface to be installed in the existing control panel.

### Schedule of Works.

1. Isolate and locally drain heating, disconnect and remove existing Hamworthy Purewell 120 boilers and ancillaries.
2. Supply and install 2 no. Hamworthy Purewell Variheat PV140 MK2 floor standing condensing boilers.
3. Supply & install a new vertical flue system to utilise the existing roof penetration, rise and terminate at high level, to include high level access.
4. Modify and reconnect gas pipe work, and supply & fit a gas safety solenoid valve.
5. Remove existing Smedegaard T-6-125-40 twin head primary pump, and supply & fit a replacement Etaline DL 065-065-125 twin head pump. Modify and reconnect LTHW pipe work to boilers.
6. Install new boiler condensate drainpipe work. New heating pipe work to be lagged with Isogenopak insulation to match existing. Install a dosing pot and dose heating system with corrosion inhibitor.
7. Supply & install a new Schneider Eco Struxure AS-B-36 controller with a touch screen interface on the control panel fascia. Modify and reconnect power and controls, to include heat detectors over the new appliances and an emergency stop.
8. Test new plant and arrange commissioning by the manufacturer. Allow to fully programme and commission the new BMS system.

**Subtotal £37,382.31**

### Optional Works

- To supply & install a new control panel, and new field wiring and containment to all devices - **£5,554.26**
- The existing Smedegaard EV5-125-4CDS twin head heating pumps are approaching the end of their serviceable life. To supply & install a replacement KSB Etaline DL 050-050-125 twin head pump - **£2,697.69**
- 10. To supply & fit 8 no. Schneider 3 port motorised valves and actuators, and modify and reconnect pipework - **£4,273.78**

This Estimate does not include any Costs or Works associated with the Duty Holder's responsibilities under Regulation 4 (Duty to Manage Asbestos in Non-Domestic Premises) which is a Revision to the Control of Asbestos at Work Regulations 2002.

Total excluding VAT	£49,908.04
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## Summary

	<b>Stronghold</b>	<b>Just Gas</b>	<b>Wemco</b>
Number of Boilers	2	4	2
Commercial?	Yes	No, residential	Yes
Boiler Type	System	Combi	System
Warranty	5 years (option to extend)	5 years, extended to 10	5 years
Control Panel / Timer Control	Bespoke. Designed for BTC's needs	Timers	New control panel
Flue	New to meet current regulations	New to meet current regulations	Using existing flue outlet which does not conform to current regulations
<b>Cost</b>	<b>£21,962.25</b>	<b>£22,350.00</b>	<b>£49,908.04</b>

## Recommendation

The original report recommended that the Town Hall Committee employed Stronghold UK in conjunction with Bowen Electrical to carry out the works. The Town Hall Committee

resolved to recommend to Full Council that the Council should appoint Just Gas to carry out the works.

It should be noted that following the decision of the Committee, it came to light that the boilers recommended by Just Gas are residential and not commercial. It should also be noted that the quote is for a combi boiler and not a system boiler and will therefore not be compatible. The Facilities Manager carried out due diligence checks and spoke direct with the manufacturers, Viessmann, who advised that they do have commercial boilers more suited to BTCs requirements. For price indication, the manufacturers sell residential boilers for £1,100 each and commercial boilers for £5,088. This would therefore potentially change Just Gas' quote to:

	£22,350.00	
-	£4,400.00	(4 x £1,100)
+	<u>£10,176.00</u>	(2 x £5,088)
	£28,126.00	

It is therefore recommended that the Town Council appoint Stronghold UK in conjunction with Bowen Electrical to carry out the works. The cost of which to be taken from the Town Hall Contingency Ear Marked Reserves.

*\*There are currently no grants available from the Government to support the suggested works. We are continuing to monitor the relevant websites for any updates.*



**Annual savings:**  29%  163926 kWhs  6.4T **Payback: 2.3 years**

## 29% savings on heating costs with improved guest comfort

*How heatboss is helping The Causeway Hotel to ensure that guests have personalised comfort levels while the hotel's management team has better control, saves on heating and hot water costs and reduces the hotel's carbon emissions.*



### OBJECTIVES AND OUTCOMES ACHIEVED

Their objectives in terms of energy management were to:

- Improve overall control of the hotel's heating and hot water requirement.
- Reduce costs of energy used for heating and hot water.
- Achieve better room by room control of the heating/temperature levels required by guests.
- Improve individual guests' own comfort levels.
- Make the hotel greener via an environmentally sustainable approach.

Installing heatboss has achieved the following outcomes:

- Complete control achieved over heating and hot water requirement.
- So far, savings on energy usage for heating and hot water are averaging **29%** over last year and **34.5%** over the average of the last 3 years.
- Room by room control has improved the comfort levels of every guest.
- The hotel has become a shining example of a green and sustainable approach to energy usage.



## BACKGROUND

Based near the Giant's Causeway, a world-famous UNESCO World Heritage Site, since early 2014 the Causeway Hotel has been owned by the National Trust (NT). Its location means mainline gas isn't available, so its heating had been oil fired.

In its first energy reporting year (2014/15) the hotel was the National Trust's highest heating oil user at 47,316 litres, and a contributing factor was the lack of control over energy usage. This was a major challenge for both the NT's project manager and the director of the hotel's management company HMS UK & Ireland.

Driving the need for action, under the NT's 2010 Grow Your Own Energy strategy, ambitious targets had been set for all of the buildings for which it's responsible:

- Reduction of overall energy use by **20%**.
- Generation of **50%** of the remaining energy need from renewable sources by **2020**.

So as a first step, in 2017 the National Trust's project manager and hotel manager not only ensured that biomass replaced oil as the primary energy source (while biomass is the primary energy source, LPG is only used for back up purposes), but also decided to install the heatboss controls system. This meant the hotel benefitted from not only a more centralised heating system using a sustainable fuel source, but one with far more precise controls over energy usage and guests' comfort.

## THE BUILDINGS

The Causeway Hotel has two plant rooms, one serving the original hotel building dating from 1830, and the other serves a 1980s extension at the back. A major factor in terms of energy usage is the hotel's highly exposed location on the edge of the Atlantic, in the teeth of all sorts of weather extremes.



## THE PROBLEMS PRIOR TO HEATBOSS

The project manager explains the issues the hotel management faced: "Before the heatboss installation there was no way of controlling individual rooms or areas. Control of heat depended heavily on members of staff going into each room and manually adjusting radiator valves."

She comments: "Due to the nature of the building – an 1830's main building and 1980's extension, and all on a very exposed site - there were vast variances in the heat loss on a room by room basis. To make matters worse, the rooms didn't have thermostats and there was no rational way of adjusting heat to rooms based on occupancy,

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" Before the heatboss installation there was no way of controlling individual rooms or areas ... it wasn't uncommon for all the rooms to be heated at all times... "

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At the time, the only way to adjust each room's temperature was manual, as the project manager outlines: "Prior to heatboss, the only method of controlling heat of which I was aware was asking staff to physically go into each room and adjust radiator valves. This was not only made things difficult to manage, but quite often the heat would be left on and the windows opened to reduce heat...!"

The hotel manager adds: "This was also highly inconvenient for our guests when they were in their rooms, as they'd have to call reception and then wait for a member of staff to come and adjust the radiators, or open the windows – all of which left guests with a distinctly negative impression of the way we controlled, or didn't control, our heating."

## PURCHASE AND INSTALLATION: REASSURING, QUICK AND EFFECTIVE

What persuaded the project manager to go ahead and install heatboss? "The simple user interface was a key factor," she explains, "and the fact that the whole system was non-intrusive and totally reversible was a big selling point from a building conservation point of view. The other key factor was the ability to manage heat to all rooms remotely."

And the installation itself? "The installation process was very quick and effective," the project manager says, "and it worked well as it was integrated into a planned hotel closure, so there was no disruption to guests whatsoever."

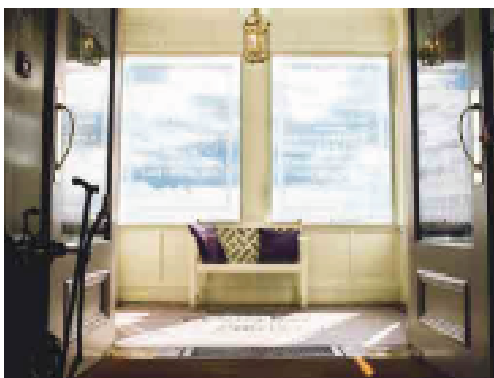
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"heatboss impressed us with their understanding of our need"

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The hotel manager adds: "We all had a plan and schedule, and the heatboss installation was not only simple and straightforward, but the heatboss team worked very well with everyone else."

"They were great to work with and, given this hotel's unique situation on the edge of the Atlantic and all the extremes of weather it has to face and the widely varying impact on the rooms' comfort levels, heatboss impressed us with their understanding of our need to overcome and manage these critical aspects."



## WHAT HAS HEATBOSS MEANT TO YOUR BUSINESS SINCE IT WAS INSTALLED?

The project manager is clear about the benefit of installing the heatboss controls system: "The heatboss system is exactly what was needed in this building and it's working very well."



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"The heatboss system is exactly what was needed in this building and it's working very well."

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What the project manager also noticed is that there's another aspect to controlling energy and especially heating usage: the human element! But better controls now show exactly what's happening anywhere in the building, so even this is improving, as she explains: "Nurturing a culture of energy efficiency is always a challenge in a building with so many staff, however, through additional heatboss training, this is improving and the fact that the system can actually monitor when and where things are not being used as efficiently as possible, has been extremely valuable."



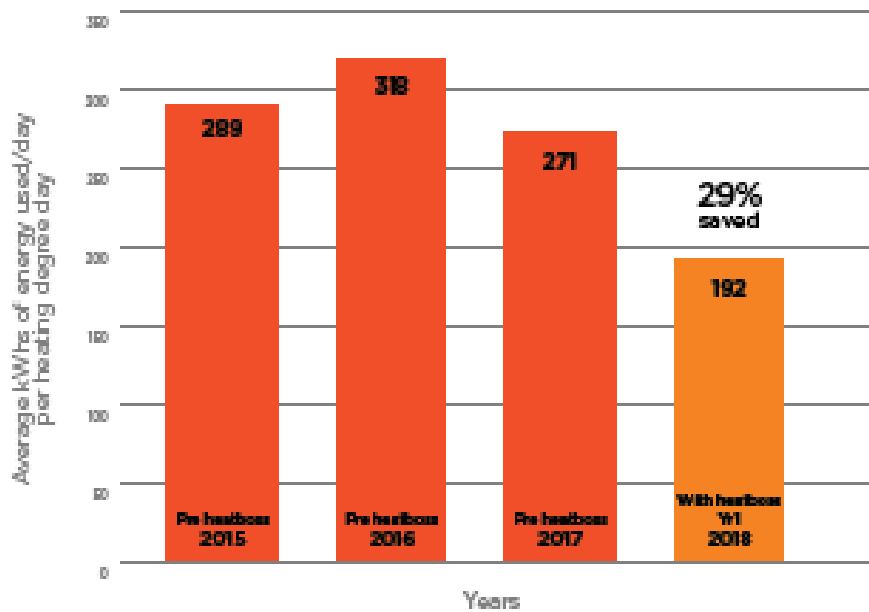
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"hotel staff are now commenting how much easier it is for them to ensure the comfort levels of all our guests"

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The hotel manager comments: "Yes, and the hotel staff are now commenting how much easier it is for them to ensure the comfort levels of all our guests, even though they'll all have different requirements from one room to another."

"Importantly, this has also meant increased guest satisfaction, as we can now adjust the room temperature by as little as 1°C from reception, in the situation where a guest wants their room warmer or cooler. And that means there's no more running around opening all the windows!"



Savings 29% per year

Payback = 2.3 years

heatboss was installed in November 2017, so this savings analysis covers less than one year. It will be updated after a full year of data is collected.

### SUPPORT: "EXCELLENT"

The project manager is delighted with the back up from heatboss, whose team has helped at every step of the way to energy control: "The support has been excellent, very proactive and readily available to help the hotel's team of staff, especially with any initial bedding in issues."

The hotel manager was also delighted with the support from the heatboss team: "We enjoyed the benefit of support and hand holding after the installation from heatboss. This came in two forms: remotely when they could see the same data on our computer screens and show us how to interpret it and what to do, and then in face to face meetings where they'd discuss all the recorded data with us and help us work out the actions required." heatboss provide an ongoing support and maintenance service for all their clients.

She adds: "As with any new system, our staff had to get used to operating the new system and incorporating into their daily routines, but with some additional support of the heatboss team, our staff only need a few minutes each day to make the relevant changes to the building's heating to reflect the needs for that day."

### SUMMARY: "IF YOU'RE RUNNING A HOTEL, GET HEATBOSS!"

The hotel manager summarises: "I've found it very easy to work with the heatboss. They really listen and make sure they understand all the details, and they're very good at explaining things to us and our staff. They're very supportive and I've no hesitation in recommending heatboss to any other hotelier."

"I've no hesitation in recommending heatboss to any other hotelier"