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ADVECO
HOT WATER SPECIALISTS

Advenco and McDonald's

- Advenco have supplied water heaters to McDonald's since 1984
- We have hot water systems in over 500 McDonald's
- We work to be a great partner to McDonald's
- Hot water is business critical for McDonald's; we aim to provide a consistent and Reliable hot water supply through quality and service.

CPD
CIBSE

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McDonald's Current Hot water system for new builds



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Current McDonald's System



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But how did we get here?



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Adveco (AWP) Ltd. trading as A.O.Smith Water Heaters



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BT155

Original AO Smith units that we supplied to McDonald's starting in 1984

- BT is pre-CE approval



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ADMP40

ADMP replaced the BT when CE approval became regulation in the 1990s

- 40kW
- Permanent pilot



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BFC28

AO Smith condensing water heater for McDonald's from about 2000.

- 96.3% efficient (gross)
- Not affected by scale
- Very reliable



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2011: What does McDonalds want from their hot water system?



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Since 2011

- Heat reclaim preheat system using Foster's condensers to gain free heat from the chiller and freezer
- Electrical Immersion Backup
- Mezzanine floor external mounted system in GRP box
- Automatic changeover electrical immersion backup with fault notification
- Control panel (wiring station) developed to assist installer with the controls
- Heat reclaim preheat system as a product to use with Danfoss condensers
- Electrically heated version (previously all gas)
- Roof mounted preplumbed solution with limited height (1.7m)
- Roof mounted preplumbed solution with lower height (1.4m)
- Control system with 2 week boost
- Replace heat recovery with ASHP
- Electrified future system (standardise on no gas, improve electrical offering – low Watt's density)
- Electric boiler low scale system
- Metering and analysis for justification of sizing and building modelling
- Stainless Steel cylinders for some low water quality areas
- Full electric options for estate degasification project



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From 2011

We developed systems to cover all building types

- Modular Build
- Traditional build system
- Restaurant services system
- ASDA system
- Delivery Kitchen



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McDonald's Supply

Same concept for all systems:

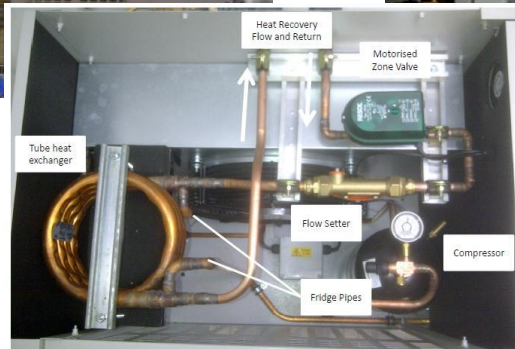
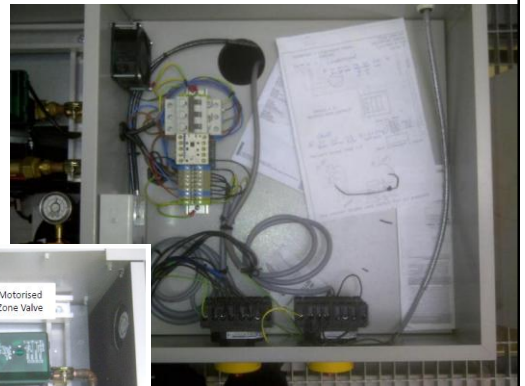
- Gas or electric water heating
- Backup electrical immersion system
- Where the building allows (or franchisee chooses): Some source of preheat to reduce carbon and running costs



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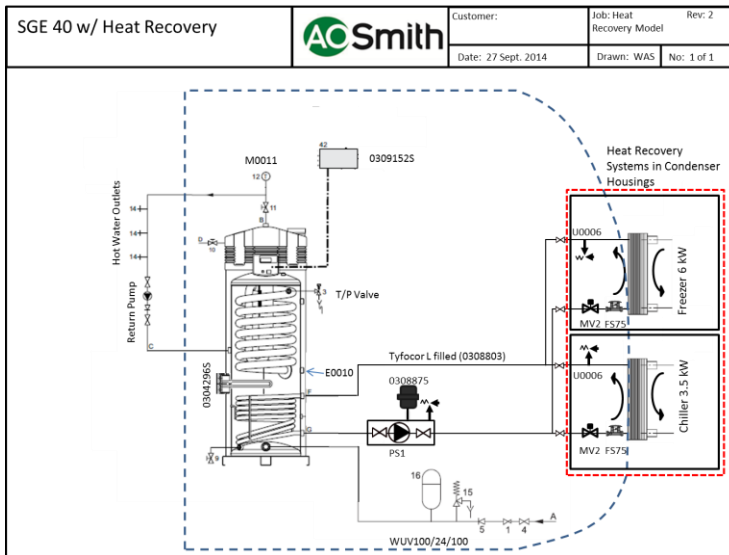
2011: Heat Recovery System



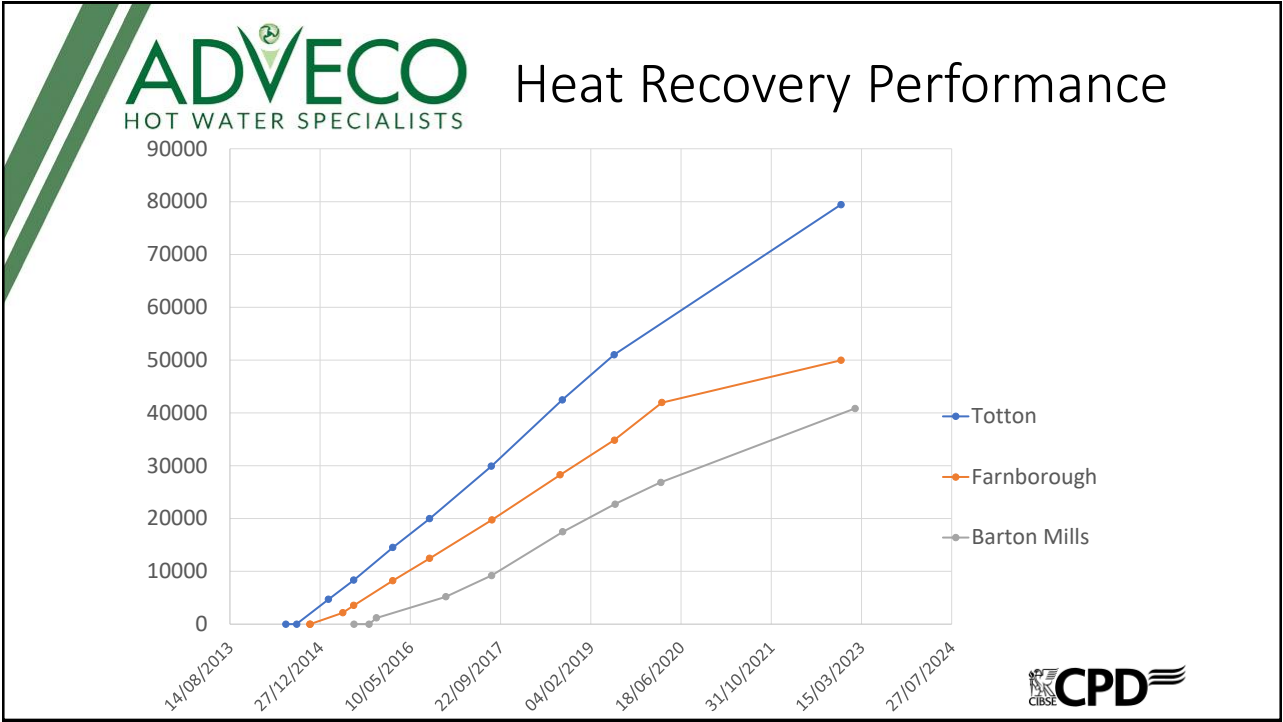
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Heat Recovery Performance

- 125 stores x 50,000 kWh 10 year average x 0.159p/kWh = £990,000 saved for a cost of £250,000

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2012: McDonald's Requirements

- Hot water is Business Critical – Back up is needed so a fault does not cause the store to lose hot water
- We developed a back up system to relieve pressure of breakdown

2012: Immersion Heater Back up

7.5kW electric immersion backup





2013: McDonald's Requirements

- The manager should not be responsible for activating the backup system – it needs to happen automatically, be easy to install, and ensure that it does not run continually on back up
- We developed an automatic changeover system with fault notification



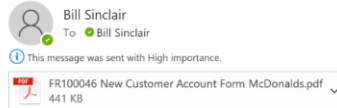
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2013: Control Station, auto changeover, email notification



URGENT: Fault detected within your store water heating system



Dear McDonalds Store Manager:

This is an important message concerning a possible fault in the hot water system installed at your store. Please read this message. Your store features an advanced AO Smith water heating system which includes an automatic error report function. This system fault means that your system is running in a back-up mode with reduced output. In the event that this back-up system fails, your store will lose all hot water and you may be required to close the store until the fault is resolved. Please take these two steps explained below to overcome the error:

1. Verify the fault exists
2. Call your service provider to investigate the fault

While running on the back-up system your store will be receiving a reduced hot water capacity, and you should take necessary measures to ensure the store remains open.

Verifying the fault:

It is possible that the system will notify us of a fault during periods of planned maintenance, such as fire alarm drills or water heater checks to confirm. To avoid an unnecessary callout charges for a false alarm, please carry out the following checks on your water heating system:

Gas Water Heaters: (Grey units with black lids) The fault could be a false alarm caused by a power cut or poor electric supply, it is recommended that you perform a visual check of your water heating appliance, which features an LCD display that may be displaying an error code.

- Ensure that all power switches and isolators are in the "ON" position and that the water heater is receiving power by checking that the LCD display is lit.
- Note down the error code then press the "RESET" button on the water heater control panel, explained below, to clear the error code and allow the unit to restart.



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Auto-backup Performance

- The number of electrical installation problems is very low.
- The number of no hot water days is almost zero.
 - There are still some single points of failure of the full system
 - When these faults occur we have to deal with them
- There is still an issue with fault messages being ignored, but my feeling is it is less common than it used to be.
- There is still a problem getting the stores to sign up to the SIM service when it expires after 2 years.

2014: McDonald's Requirements

- Not all stores have gas – electric is used in 25% (2014 figure) of new stores to provide hot water

- We developed an electric version



Old supply: DRE



- Original electric units that AOS supplied to McDonald's



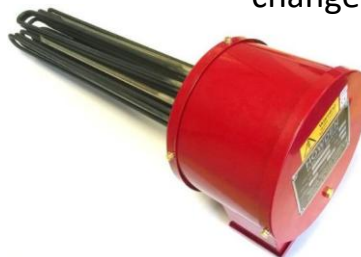
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2014: ITE indirect tank with immersion

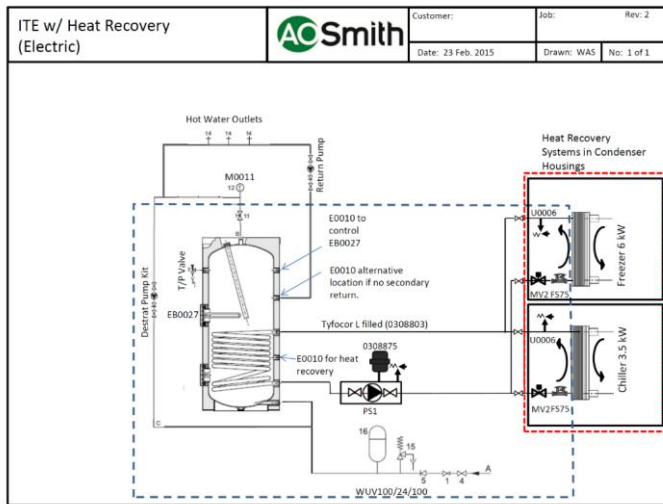


- ITE400
 - 400L indirect tank
 - Coil for heat recovery (200L low)
 - 18 / 9kW two circuit immersion heater for after heater (200L high)
 - New electric system auto changeover control system



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Heat Recovery System – Electric



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2015: McDonald's Requirements

- Space inside the store is too valuable to take up with hot water equipment – it should go on the roof, but roof space has height limitations
- We developed a packaged plantroom system with limited height

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2012: First GRP systems



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2015: First prepackaged system



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2017: Gen 2 prepackaged system



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2020: Gen 3 prepackaged system



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Adveco (Cosmogas) ASHP Range

- Air source heat pumps with monobloc arrangement
- 9 kW
- Inverter Driven

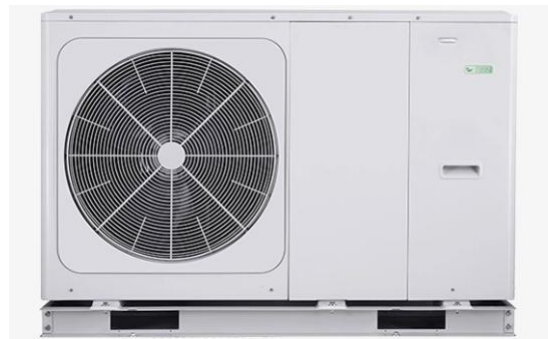


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Adveco (Cosmogas) ASHP Range

- 200 heat pumps supplied so far since beginning 2020
- Started with R410A, but improved with R32 mid 2022
- Changed manufacturer in 2025 for better support.
- Midea Heat Pumps
 - Similar in capacity and efficiency
 - Better support
 - Better warranty



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2025: Gen 4 prepackaged system



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2018: Restaurant services system

- 2 week boost



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Delivery Kitchen

- Self contained full electric system



2024: Internal Installs

- Trad builds and the beginning of the estate degassing project pushed us to provide the equipment from the packaged plantroom loose for installation internally.



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Internal Installs

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Internal Installs

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Adveco and McDonald's to date

Since 2010 we have supplied over 500 McDonald's restaurants that we know of. In total, we are near 1/3 of McDonalds sites.



2025: Current McDonalds offering

- Offering for internal and external McDonalds



McDonalds Training

- Gas fired water heaters: BFC / SGE / IR
- Heat Recovery boxes
- Cylinders
- Electric Immersions
- Control Panels
- Electric Boilers

McDonalds Training

- Gas fired water heaters: BFC / SGE / IR
 - Sold since the late 1990s, well understood, not a focus today, but happy to take questions at the end
- Heat Recovery boxes
 - Pump and controller in a box, technically not difficult to work on. Due to time available today it is out of scope, but happy to answer questions on it.
- Cylinders
 - Maintenance requirements: recognising differing requirements for glass lined and stainless. Covered today
- Electric Immersions
 - Descaling, checking amperages for function, covered today
- Control Panels
 - Focus on correct installation and testing relays, covered today
- Electric Boilers
 - Maintenance and repair covered today