

CASE STUDY

HEAT RECOVERY HEAT PUMP VENTILATION & HOT WATER

Off-gas solution for
Passive Houses



OFF-GAS SOLUTION FOR DITCHINGHAM
PASSIVE HOUSES WITH WITH PASSIVHAUS
RECOMMENDED COMPACT SERVICE UNIT.



CURVED MEWS STYLE
SUSTAINABLE
DEVELOPMENT

This is a housing association project in Ditchingham, Norfolk where Total Home Environment provided the perfect solution to an off-gas problem.

The 14 homes were built by Keepmoat for Hastoe Housing Association in an attractive curved mews design. Constructed to Passivhaus standards and being completely airtight, mechanical ventilation was a must, but heat losses would have to be minimised. This is where Total Home Environment's (T.H.E) heat recovery ventilation was the perfect solution. Additionally, there was no gas in the village so a sustainable alternative to a fossil fuel heating system had to be found.

T.H.E's Genvex Combi 185 system was installed into each home to provide ventilation, heating and domestic hot water, all in one unit, simplifying the build program significantly and saving on space.

The Combi uses an efficient counter-current heat exchanger together with a super-efficient integrated mini exhaust-air heat pump to heat domestic water and air using warm air extracted from the property. Due to the buildings' excellent thermal properties, no additional heating system was needed.

The Combi also has a secondary coil to allow an additional heating source to be connected. This proved useful to Hastoe, who in three of the houses, have connected the solar thermal panels on the roof to the Combi to take advantage of free heat to the hot water. This will then benefit the tenants by keeping the electricity bills lower.

Architects of the project, Parsons & Whittle, were short listed for a 2012 Passivhaus Trust Award.

Click [here](#) for a interview with an end user.

THE FACTS:

BUILD TYPE: 14 x new build house /
bungalows / flats

NO. OF BEDROOMS: 1 to 3

REQUIREMENTS: superior insulation
and airtightness required mechanical
ventilation and gas alternative for
heating and hot water

APPLIANCE: Combi 185 with Optima
310 Design controller.

LOCATED: Airing cupboard

AVE. FLOOR AREA: 55-99m²/
590 -1,065sqft

VOLUME FOR VENTILATION: 129-227m³

TERMINALS: extract x 2, supply x 2-5

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 total home
environment

We do more with air...

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OBVIOUSLY THE MORE HEAT WE CAN RECOVER, THE LESS WE NEED TO GENERATE...

Nothing can deliver fresh filtered air and remove moisture together with pollutants like a whole house ventilation system.

Typically 80-95% of the heat of the extracted air is recovered, increasing comfort levels and undeniably reducing heating bills.

TECHNICAL DATA-APPLIANCE IN CASE STUDY

DESCRIPTION	COMBI 185
MAX CAPACITY (at 125Pa):	350 m ³ /h
MOTOR:	EC motor with electronics
FAN SPEED:	3,320 RPM
POWER INPUT:	71 W (max)
DIMENSION (mm) w x d x h:	600 x 664 x 2,014
DUCT CONNECTION:	Ø160 mm
FILTERS:	F7 supply, G4 extract
WEIGHT:	395/210kg (with/without water)
WATER CAPACITY:	185 L

The Combi offers about 380L of hot water per day allowing ventilation with simultaneous heating in living areas of up to 292m².

CONTROL PANEL - OPTIMA 310 DESIGN

From the designers of Bang & Olufsen, the user-friendly controller has an LCD screen giving total control of temperature and fan speed, using a ten-stage timer.

The appliance monitors all temperatures and an information screen displays all of the current operating temperatures.



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