

WICKES COMBI BOILERS

If told that you could install a complete central heating and domestic hot water system by purchasing only a gas powered boiler with a balanced flue, a quantity of copper piping with fittings, and radiators with fittings, you could well be surprised.

Quite reasonably you could ask about the hot water storage cylinder, the feed

and expansion tank normally put in the loft, the pump, the three port diverter valve and other component parts that other central heating and hot water systems seem to need.

The answer to your queries would be that with our Combi Boiler you do not need a hot water storage cylinder which takes up a lot of space, you do not need a

feed and expansion tank up in the loft, and components such as the pump, diverter valve and other necessary controls are already built into the boiler so that all electrical work apart from the mains supply connection is complete.



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Specification:

Wickes Combi 102:- Maximum Heat Output (Central Heating) 102,400Btu/hr
Maximum Heat Output (Domestic hot Water) 102,400Btu/hr

Major features are:

- British Gas service listed which also means guaranteed spare parts availability for a minimum of 10 years
- Fully automatic ignition to burner. No pilot light needed
- Supplied with time clock
- Telescopic flue included in pack
- Can be flued vertically
- Flue outlet can be fully fitted from inside the property so ideal even for high rise buildings
- Recessed control panel with clearly marked controls
- 2 years parts and labour guarantee
- British built

This type of boiler - the combination - is not new. It has been more popular on the continent than in the U.K., but is now being fitted more frequently as an alternative to the conventional wall mounted boiler. There are two major differences between this boiler and it's better known counterparts. On the central heating side you still have a fully pumped system but all the heated water which circulates around is sealed in totally. There are no open vents and therefore no need for a feed and expansion tank in the loft. The boiler itself incorporates an 8 litre capacity expansion tank but again this is part of the sealed unit.

Domestic hot water is produced on demand only by the use of a highly efficient plate heat exchanger. When a hot tap is turned on, water from the sealed central heating circuit is automatically heat boosted and is diverted

KEEP INFORMED

- Look for other Good Idea Leaflets that could help you with your current project.
- Check that your Good Idea Leaflets are kept up to date. Leaflets are regularly changed to reflect product changes so keep an eye on issue dates.
- If you would like to be put on our mailing list for the Wickes booklet, call our Freephone number which is:
0500 300 328
- Visit our website at www.wickes.co.uk

to the sector of the domestic hot water heat exchanger. Fresh cold water from the rising main or other supply source passes through the heat exchanger where it is heated and fed to the tap, which has been turned on.

Automatic priority is given to domestic hot water over water to radiators.

When the tap is closed again the central heating water is returned to its normal circuit.

Although over simplified this is how our "combi" boiler works. In every respect the boiler and connections etc. conform to Gas and Water Research Council requirements. So far as the balanced flue is concerned the boiler is classed as a room sealed category 1N appliance. The flue is fan assisted to expel exhaust gases and pull in fresh air for combustion. It can be rotated through 360°. The flue assembly supplied with the unit has an effective length from the casing of the boiler to the external face of the wall of 632mm to the rear or 590mm to either side. Additional flue extensions are available which have a useable length of 676mm. The maximum permissible length for the Combi 102 is 2000mm.

It is also possible to add additional elbows to the flue (SKU 442-003 by special order) but remember that for each 90° elbow added you must reduce the maximum allowed length by 767mm and by 384mm for 45° elbows.

For the most difficult siting problems it is possible to take the flue vertically using a vertical flue (special order) up to a maximum height of 3851mm for the Combi 102.

This is measured from the top of the boiler to the inlet cowl. Diagram A shows flue options.

It is important to read the instruction manual supplied with the boiler before you start the installation to ensure that you meet all regulations regarding the position of the flue terminal.

This will come from your existing rising main provided that the pressure is adequate which means a absolute minimum of 0.3 bar, giving a flow rate of 2.8 litres per minute. For optimum performance 1 bar will be required. The maximum is a pressure of 10 bar. In the vast majority of cases rising main pressure is well up to the minimum

level but if in doubt your local water authority will advise you.

SPECIAL TOOLS

For the boiler installation you will require no special tools but you will find a tube cutter invaluable. A pipe bending spring will also be useful. For making soldered joints you must have a blowtorch.

PROJECT SHOPPING LIST

Below is a list of the products in the range. Based on the information provided you can produce your own shopping list.

Product Description	Code
Wickes Combi 102	443-020
Combi Terminal Guard	441-003
Combi Filling Loop	443-011
Room Thermostat	440-036
Combi System On/Off Radiator Valve	420-017
Combi System Lockshield Valve	420-018
Thermostatic Radiator Valve	421-000
C/H System Inhibitor	440-100
C/H System Cleanser	440-101
Size 1 Tube Cutter	500-528
15mm Bending Spring	500-591
22mm Bending Spring	500-593
15mm Copper Tube	
22mm Copper Tube	

The products available for a central heating and domestic hot water system are:-

Fittings

NOTE. The On/Off valves and the single lockshield valves listed above conform to B.S.2767, Part 10, and must be used with the Combi boiler installation. Use either these On/Off valves paired with lockshield valves or combine T.R.V.s and the lockshields.

At least one radiator - normally the bathroom - should be fitted with a permanently open lockshield valve at each end.

The boiler itself is supplied complete with detailed fitting instructions, which cover the flue installation as well.

BEFORE YOU START

STATUTORY REQUIREMENTS: It is the law that all gas appliances are installed by a CORGI registered fitter, in accordance with the Gas Safety (Installation and Use) Regulations 1998. In addition to these

regulations, all electrical work must conform to BS 7671 the current IEE Wiring Regulations, and Part P of Building Regulations. You are advised to check with your local authority's Building Control Department, or an Authorised Competent Person, before starting. If in any doubt about electrical work, contact a qualified electrician.

1. Determining the position of the boiler.
2. Selection and positioning of radiators.
3. Selection of pipe sizes and routes.
4. Installation procedures.

WORK SEQUENCE

1. DETERMINING THE BOILER POSITION

The location chosen for the boiler is governed by a number of factors:-
(a) The position of the flue must be such that exhaust gases are safely dispersed into the open air and that fresh air is available for combustion. British Gas have produced a guide - Diagram B - which gives distances which the terminal of a balanced flue must be away from obstructions, combustible materials, and other parts of the building which may affect its performance.

The recommendations should be adhered to completely.

(b) The boiler itself - wall hung - must have clearance all round to allow space for air circulation and for servicing. The minimum recommended space for the boiler is 1300mm height, 465mm width and 325mm depth. Actual boiler size including flue at the top is 900mm high, 455mm wide and 326mm deep. If the boiler is being placed in a cupboard an addition 10mm depth should be allowed for normal operation and 450mm for installation and servicing.

(c) Because of the electrical components in the boiler body it should not be located in a bathroom unless totally out of the reach of anyone in the bath or a shower.

(d) As a room sealed unit it can be located in almost any room even in an understairs cupboard for example, (provided that the cupboard is modified for this purpose.

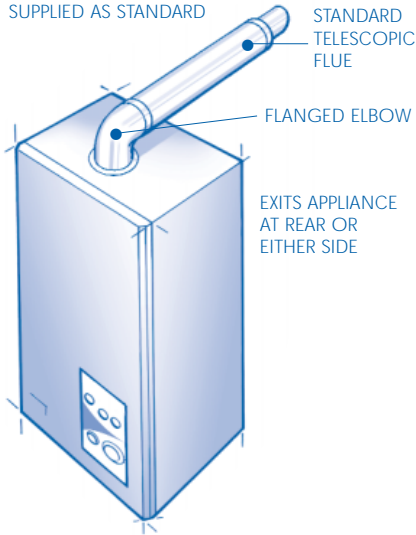
B.S.5376:2:1976 gives modification details). Even a garage is perfectly suitable although more often than not, the kitchen is the most favoured place.

Diagram A

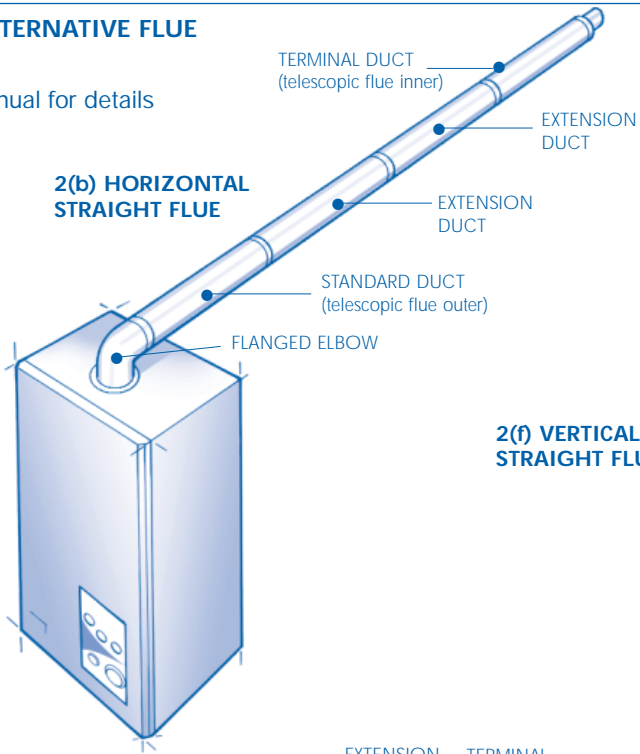
EXAMPLES OF ALTERNATIVE FLUE SYSTEMS

See installation manual for details

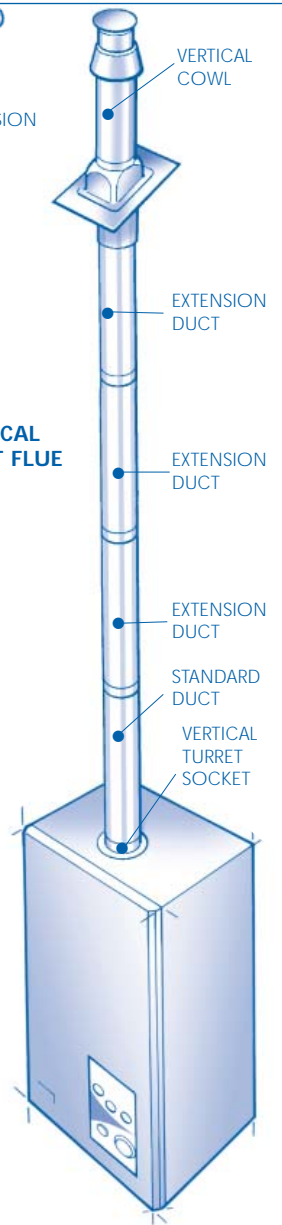
2(a) HORIZONTAL STRAIGHT FLUE SUPPLIED AS STANDARD



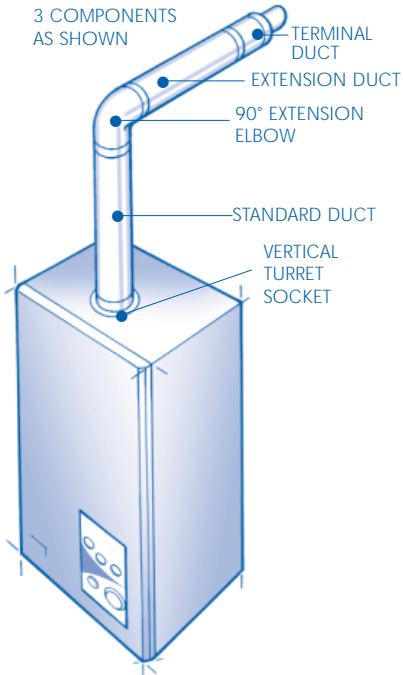
2(b) HORIZONTAL STRAIGHT FLUE



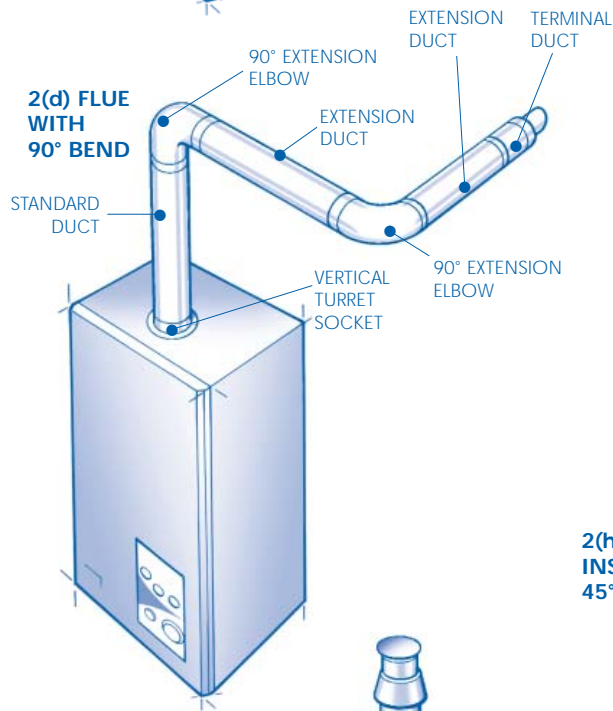
2(f) VERTICAL STRAIGHT FLUE



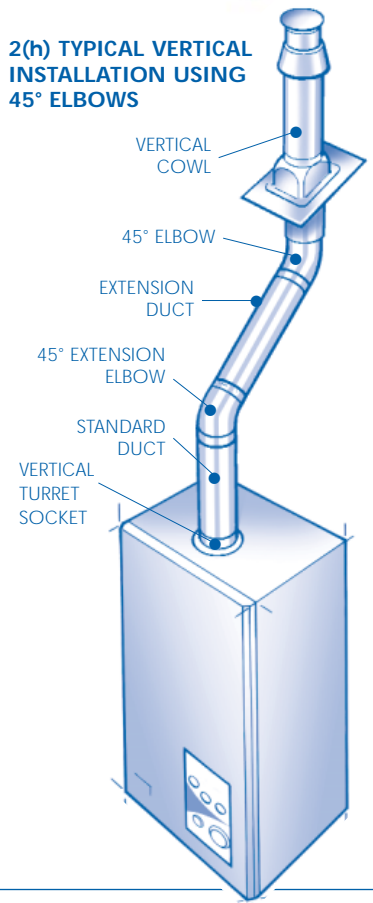
2(c) RAISED HORIZONTAL STRAIGHT FLUE 3 COMPONENTS AS SHOWN



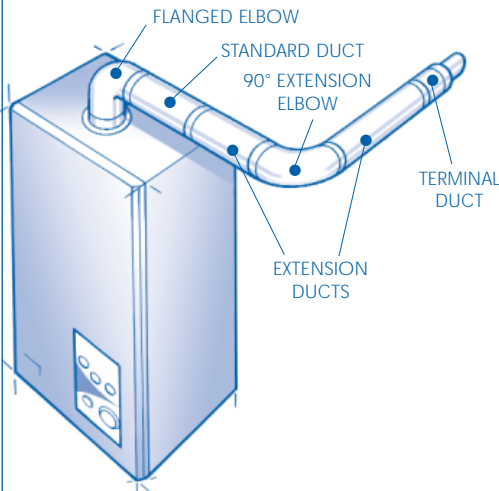
2(d) FLUE WITH 90° BEND



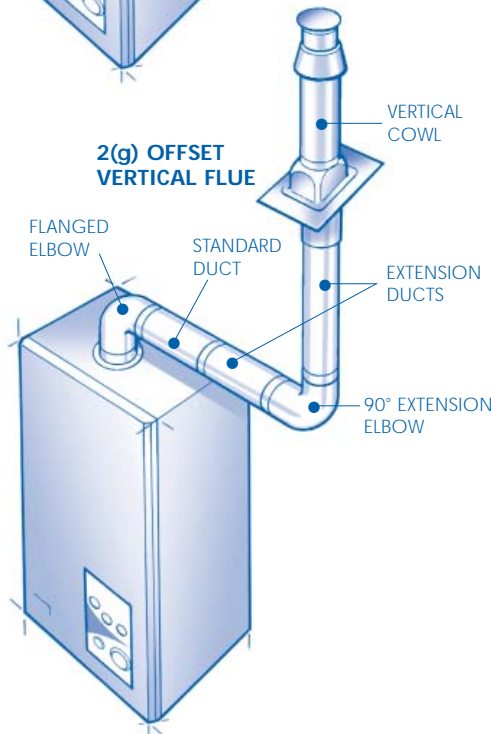
2(h) TYPICAL VERTICAL INSTALLATION USING 45° ELBOWS



2(e) HORIZONTAL FLUE WITH 90° BEND

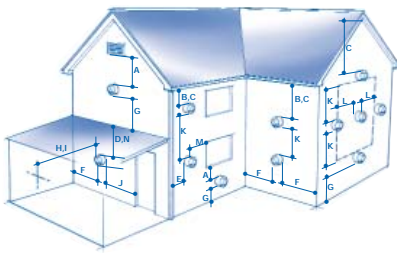


2(g) OFFSET VERTICAL FLUE

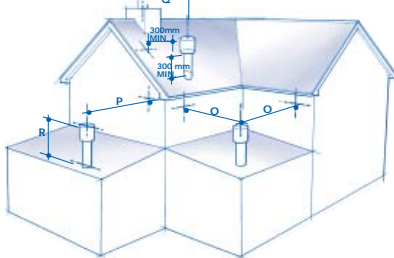


B

FLUE TERMINAL POSITION



SPECIAL REQUIREMENTS FOR A VERTICALLY BALANCED FLUE



Position	Minimum spacing		
A	Directly below an openable window, air vent, or any other ventilation opening	300mm	12in
B	Below gutter, drain/soil pipe	75mm	3in
C	Below eaves	200mm	8in
D	Below a balcony	200mm	8in
E	From vertical drain pipes and soil pipes	150mm	6in
F	From internal or external corners	300mm	12in
G	Above adjacent ground or balcony level	300mm	12in
H	From a surface facing the terminal	600mm	24in
I	Facing terminals	1200mm	48in
J	From opening (door/window) in carport into dwelling	1200mm	48in
K	Vertically from a terminal on the same wall	1500mm	60in
L	Horizontally from a terminal on the same wall	300mm	12in
M	Adjacent to opening	300mm	12in
N	Below carport	600mm	24in
O	From adjacent wall	300mm	12in
P	From adjacent opening window	1000mm	40in
Q	From another terminal	600mm	24in
R	Minimum height	300mm	12in

2. SELECTION AND POSITIONING OF RADIATORS

When planning a central heating installation one of the earliest jobs is to determine the size and location of radiators for each room in the house in order to provide those rooms with adequate heat. Our Good Idea Leaflet No. 49 gives full details concerning our convector radiator sizes and outputs and tells you how to work out which radiator size you need for any given location. Size of radiators is to some extent governed by available space and as indicated in **Good Idea Leaflet No. 49** you may need to use double radiators or two separate radiators to achieve the output necessary. As a general rule radiators are positioned under windows in order to improve the comfort level in a room and therefore sill heights can also play a part in deciding what radiator size is to be used. You should always aim to hang radiators at least 100mm above floor level and 150mm below windowsill height.

Our convector radiators are available in 400mm or 600mm heights. When considering the radiator length always allow 75mm clearance at each end to allow access to the valves.

Make a scale plan of each floor of the house and mark on it where you propose to fit each radiator.

NOTE: The reason for positioning the radiator under the window is that glass has no thermal insulation properties. Consequently, the window area is always the coldest

part of the room, and is most likely to be the source of draughts. If a radiator is situated on, say, an opposite wall, there can be a considerable temperature difference across the room, and a person sitting at the window end will feel cold, even though the total amount of heat being generated from the radiator is sufficient to heat the room. If French windows or Patio doors are fitted, put a radiator as near as possible to them to offset the heat loss. In a large room with one window, fit one radiator under the window, and another opposite with a heat ratio of approx. 2:1 in favour of the glazed area. In a large room with two windows, fit radiators under both windows in the approximate ratio of their areas. If double glazing is fitted the positioning of the radiators is less critical.

3. SELECTION OF PIPE SIZES AND ROUTES

First, a little theory: The boiler heats the water, but the heat is needed somewhere else, and in different amounts in different places. How much and where has been decided in selecting the radiators. The water in the system stores the heat, and the pipes, helped by the pump, transfer the water, complete with its load of heat to the radiators. An appropriate quantity is transmitted into the room through the surface of the radiator to make it warm. The water then returns to the boiler to collect some more heat. All very simple.

It follows that at any given temperature, a larger volume of water

holds more heat than a smaller volume, and to transfer that larger volume requires larger pipes. The alternative of forcing more water at higher speed through smaller pipes leads to an unacceptable level of noise in the system. This will have to be taken into account when selecting the size of pipes, but first it is necessary to decide where they will go. In an existing house it is almost certain that in order to avoid doorways and other obstacles and to minimise the amount of drilling of walls, the easiest route will be under the floorboards at first floor level, dropping down to ground floor radiators and branching off to the upstairs radiators. In a bungalow, the roof space usually provides the easy path. Starting from the boiler position, look around the house and decide on the best route for the main flow and return pipes. These will probably run parallel to each other and pipes will be taken from the flow pipe to one side of each radiator, and from the other side back to the return pipe. Hence the description "Two pipe system".

Diagram C shows a typical layout. Having decided upon the best routing, mark the pipe runs on the plan including the feeds to each radiator.

Obviously, when the water leaves the boiler, it has to carry enough heat for the whole system, and as each radiator is supplied with heat, the amount of heat required for the remainder of the system reduces, so smaller pipes can be used to carry it. It is common practice for 22mm pipework to form the main circuits with 15mm pipe used to tee off to individual radiators.

The flow and return pipes will always be the same size to and from any particular part of the system.

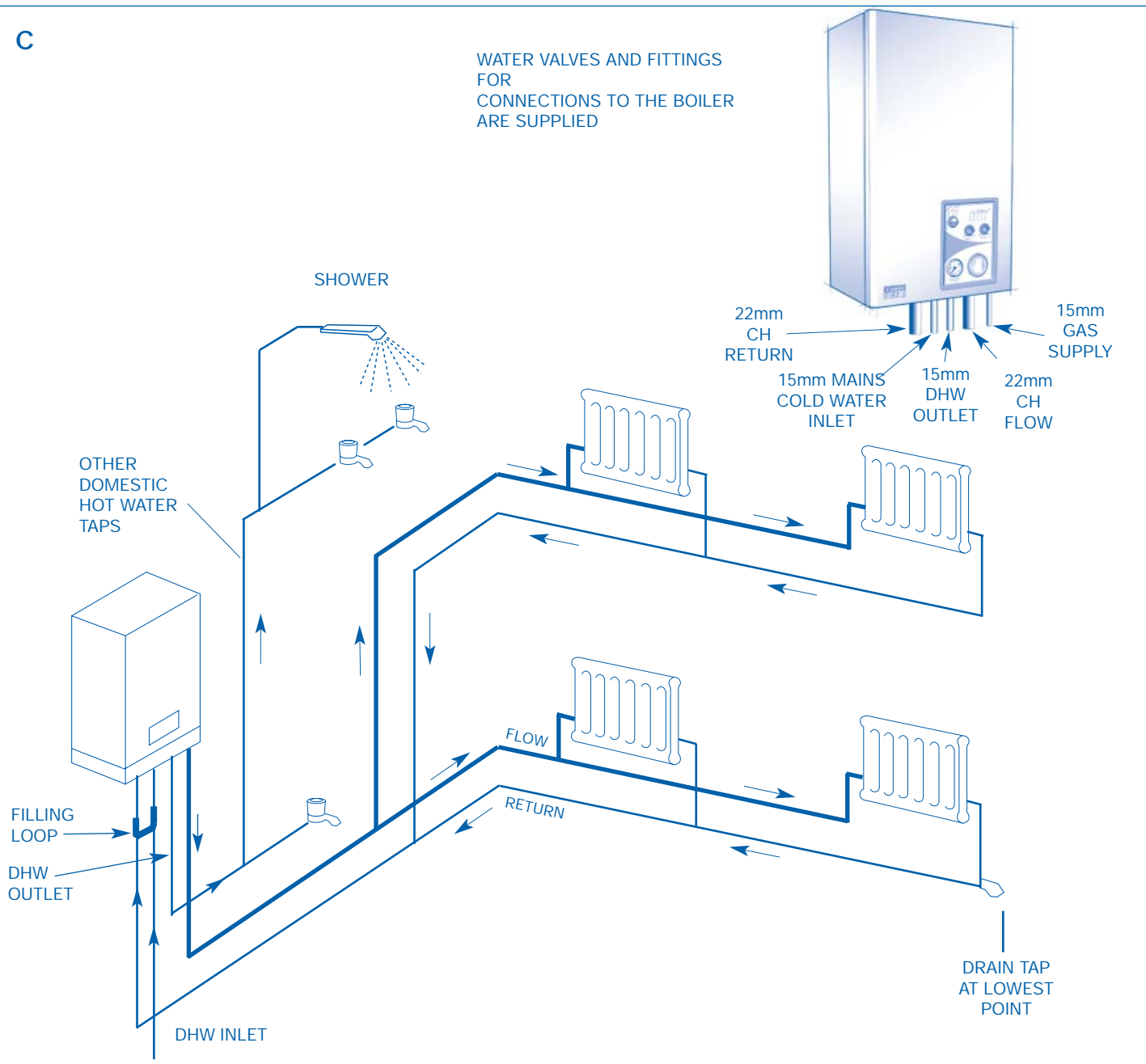
With this information, it is a straightforward matter to work out the 15mm and 22mm pipe requirements and list the number and size of the fittings needed to connect the pipework from the boiler to the radiators and back again. Allow for air vent elbows at the top of each vertical rise to facilitate bleeding the air from the water after filling.

4. INSTALLATION PROCEDURE NOTE.

The boiler is supplied with comprehensive installation instructions which must be followed to the letter.

C

WATER VALVES AND FITTINGS FOR CONNECTIONS TO THE BOILER ARE SUPPLIED



The instructions include details regarding the flue assembly. Fitting the radiators and valves All radiators should be fitted following the instructions given in our Good Idea Leaflet No.49. Locate and fit the brackets in accordance with the instructions. Before hanging the radiator, fit the tails of the radiator valves into the radiator tappings, using P.T.F.E. tape to seal the threads. To protect the radiator, just cut away enough of the protective wrappings to give access to the tappings and leave the rest on until the job is finished. Wickes have available Combi system On/Off and Thermostatic Radiator Valves (T.R.V) and Lockshield Valves (L.S.V) for radiators. The On/Off valve or T.R.V. must be fitted on the flow into the radiator (i.e. to connect to the flow pipe coming from the

boiler). Whether this is the right or left tapping on the radiator depends on the direction you have decided to run your pipes. To avoid confusion when you run the pipes to the radiators, use a marker pen to indicate flow (T.R.V. end) on the radiator. Fit the air vent plug in the top tapping above the L.S.V. and the blanking off plug above the T.R.V. Fit the bodies of the T.R.V. and L.S.V. to the tails. Do not overtighten. As previously stated one radiator, normally the bathroom one must be fitted with permanently open lockshield valves at each end. Fitting the pipework to the radiators Refer to your original plan for the pipe sizes, and note where you can reduce from 22mm to 15mm pipe to tee off to the radiators. It is very easy to confuse which is the flow pipe and which is the return

pipe, particularly after passing the pipes through a floor or wall. To avoid this, put a band of red adhesive tape around each end of each piece of pipe before you fit it in the flow line, and say, blue tape for the return pipe. It is then a matter of connecting red to red, and blue to blue, red to the T.R.V. and blue to the L.S.V.

Air Venting
The water that will eventually fill the system will initially contain a lot of air, which must be released. Some will be trapped in the top of radiators and can be released through the bleed valve in the air vent plug, but in running the pipework, look out for any high loops of pipe, for example in the roof space of a bungalow which could trap air, as this can block the flow of water. You should fit an air vent at the highest spots.

Following your diagram for pipe sizes, and using the colour coding system to identify flow and return, run the pipes to the boiler as described in the boiler installation instructions but also noting the use of the Filling Loop described shortly. Domestic hot water supply pipes All pipework to domestic hot water taps is run in 15mm copper pipe. Plan your route with care to avoid the unnecessary use of pipe and fittings. The connection at the boiler is for 15mm pipe. If the hot water system does not include a tap below the level of the boiler hot water outlet connection, you should provide a suitable drain tap at the lowest point in the pipework to allow the domestic hot water system to be drained during servicing.

Cold water inlet connection

This is the final water connection to be made and consists of a link from your existing rising main to the boiler in 15mm copper pipe, incorporating a 'Combi' Filling Loop. Effectively this is a device, which is a double non-return valve as required under the 1987 Water Authorities Byelaws to prevent the accidental contamination of the public water supply. It also acts as a stopcock to isolate the mains water supply from the central heating system.

The loop is fitted in the cold water supply pipe just prior to the cold supply inlet valve and 'loops' from there to the central heating return pipe again adjacent to the boiler connection. Full instructions are supplied with the 'loop' which can be considered an essential part of the system.

Electrical connections

The method of connection to the mains electricity must allow complete isolation from the supply. The best method is by using a fused double pole switch with a contact separation of at least 3mm. The switch must supply only the appliance and associated controls. Alternatively use an unswitched shuttered socket outlet with a fused 3 pin plug both complying to BS 1363. A 3-amp fuse should protect either method.

The electrical connections required between your boiler and the time switch are included with the time switch.

A separate room thermostat may be

fitted and fitting instructions are included in the boiler installation manual.

Filling the system and testing This is fully described in the installation instructions. Use our system Cleanser to remove debris and flux residues from the pipework and radiators. The container has usage instructions.

When all procedures have been followed the gas supply may be connected.

STATUTORY REQUIREMENTS:- It is the law that all gas appliances are installed by a CORGI registered fitter, in accordance with the Gas Safety (Installation and Use) Regulations 1998. In addition to these regulations, all electrical work must conform to BS 7671 the current IEE Wiring Regulations, and Part P of Building Regulations. You are advised to check with your local authority's Building Control Department, or an Authorised Competent Person, before starting. If in any doubt about electrical work, contact a qualified electrician. Important Note:- The manufacturers instructions must NOT be taken in any way as over-riding statutory obligations.

GAS CONNECTION AND COMMISSIONING

The Gas Safety (Installation and Use) Regulations 1998 lists a number of activities, which constitute "work" on gas fittings. Under these regulations, gas fitting means gas pipework, valves, regulators, meters and fittings, apparatus and appliances designed to be used by the consumer of gas for heating, lighting or cooking. For connecting and commissioning the boiler you will need to either employ the services of a CORGI registered fitter (01256 372200 for details) or you may be able to employ one of the service engineers listed (not all these engineers provide a connection and commissioning service).

Wickes does not accept any liability of whatsoever nature in relation to the service engineers including but not limited to the suitability of the service engineers or their workmanship. A full list of manufacturers service engineers is at the end of this leaflet.

GAS SUPPLY

If it is necessary to run a gas supply to the boiler position, the service of a CORGI registered fitter should be retained. Cost will vary on the location of the gas pipe.

DO NOT ATTEMPT THIS YOURSELF.

REMEDIAL WORK

The service engineer will carry out any remedial work at your request. All charges should be paid directly to the service engineer at the time the work is carried out.

For additional advice on your boiler choice and installation or for in guarantee boiler faults call the manufacturer's (Halstead) service line on

01926 834 834

SERVICE ENGINEERS BY AREA

(See map)

AREA 1

Technical Boiler Services-Dorset 01305 839572
 Jim Salter - Portsmouth 023 926 90056
 Paul Edwards PDT - South Coast/West Sussex
 01444 244227 Mobile: 07901426425
 Warmhouse Services Limited - North London
 01992 768686
 Paul Simmons - East Sussex 01323 508496
 Clarke's Mechanical - Isle of Wight 01983 299908
 Minack Mechanical Maintenance - Worthing to
 Hastings/South Coast/ Northwards above
 Crowborough. 01825 766992
 Steve Collinson - Wiltshire 01980 622609
 Saglio Combustion Ltd - South London
 020 8697 3142
 Dave Blades Plg. & Htg. OX17 2DN Oxfordshire
 01295 711383
 Philip Foxwell - Bournemouth/Poole
 01202 891306
 M K Heating Engineers Ltd - South West London
 01784 457137
 Simon Tomlinson - East Sussex/Hastings
 01424 755008
 A.E.F. – Alan Fuller - Gillingham 01634 372789
 First Gas Services - Dartford 01474 353010
 Graham Bailey - Salisbury 01980629617
 EHV Gas & Heating Services Ltd
 (Graham Burns) - Surrey 01737363635
 PMB Plg Ltd t/as Heating Solutions -
 Herefordshire 01531 671000
 M. Prideaux Heating Services - Hampshire
 01962 624230
 Chambers Property Svs Ltd - Kent 01795 47777
 C & S Renwick - West Sussex -
 Post codes, BN16, 17, 18. 01243 262940
 Technical Heating Services - Surrey
 0208 3940834
 A M R Htg & Air Conditioning - Colchester
 01206 728460
 Rhino Plumbing & Heating Hants - Eastleigh
 0238 0612787
 Mike Glendenning - Dorset 01202 823963
 Seers Fireplaces & Boilers - London Office
 0208 858 0033/0208 293 0293/0207 371 8999
 John Drabble - Essex/London 01702 523876

AREA 2

Combi Care (Bristol) - Bristol 0117 9619 800
 Thermal Maintenance - S. Wales 02920 522699
 Flamerite Gas Installation & Maintenance -
 Penzance 01736 333001
 Powys Gas Newtown area 01686 627699
 Mobile: 070990598706
 Consumer Gas Ltd - Shropshire 01952 608040
 Hockin Heating Services - N. Devon 01271 324913
 Glen Jenkins - Plymouth 01752 561956
 David Kelsall Swansea - Swansea 01792 363086
 Warmstar Heating - Cornwall 01209 315556
 Paul Reynolds - Bath 01225 835479
 Dean Kirkland - Somerset 01935 478937
 A D Fisher & Co. Ltd - Wrexham 01978 661162
 Ashburn Combustion Services - Bristol/Swindon
 0117 960 8396

Mid Wales Gas - Mid Wales 01654 710879
 Lee Sadler Plg & Htg Services - Cornwall
 01637 860793
 Lomac Boiler Services - Devon 01752 779457
 Weston Plumbing & Heating Somerset -
 Weston Super Mare 01934 643451
 L R S Heating - Swindon 01793 877214
 A S Electric & Heating-Worcester 01905 795016
 A Select Heating Services - Worcestershire
 01905 20186
 Paul Davis TA24 - Minehead, TA23, TA4-Williton
 01643 706880



AREA 3

Gas Care Limited - Staffordshire 01782 327017
 Central Heating Services - Cambridge/North
 London/Essex 01279 814670 / 020 8503 6600
 Trevor Collington & Son - Derby/Nottingham
 01509 673855
 Apollo Heating Services
 Birmingham/Coventry/Nuneaton/
 Wolverhampton/Stourbridge 0121 706 0773
 Heating Solutions - Leicestershire 01509 816690
 D & B Giles - Lincolnshire 01673 828774
 GMD Boiler Svs - Norfolk/Suffolk 01603 864865
 Gary Oseland - Scarborough/Driffield
 01723 870944
 J M Woods - Lincolnshire 01406 363134
 Combination Boiler Services
 Nuneaton/Coventry/Warwickshire 024 76490458
 Steve Moriarty Gas & Plg - Northamptonshire
 01604 233055
 Fennell's Plumbing & Heating Svs- Norfolk
 01502 588014
 D & R Plumbing - Peterborough 01733 578274
 Alsager Plumbing - Staffordshire 01270 875171
 Monkspath Plumbing & Heating - Birmingham
 0121 7424972
 BlueFlame Heatplan Ltd-Sheffield 01246 200990
 Maxy Gas Services Ltd-Cambridge 07815 836028
 Plumb Gas & Heat- West Midlands 07739 589331
 Robins & Chapman - Norfolk 01553 774619
 The Gas Works - Staffordshire 01543 473951
 Professional Energy Solutions - Warwickshire
 01926 419424

AREA 4

A.G. Sowden - West Yorkshire 01943 466792
 Chesterfield Heating - S. Yorks 01246 417018
 Les Irvine - Liverpool 0151 426 6291
 Ideal Heating - Manchester 01942 843333
 Michael O'Grady- Preston/Blackpool/Southport-
 Wigan/ Warrington/Liverpool 01704 500433
 Weecare Oil & Gas - Goole (East Yorkshire)
 01977 661200
 V L Services - Preston 01772 622623
 Paul White - Warrington Area 01925 657440
 Marshall Gas Services - Hebden Bridge
 West Yorks 01422 884805
 Emergency Plumbing 9 North Field Road - York
 01904 708137
 Tony Hadfield - Manchester 0161 3300966
 Meriden Gas & Plumbing-Chester 01244 300099
 Klas Heating - Wakefield – WF postcodes
 01924 361683
 R K Heating Services - Bradford BD and Halifax
 01274 889266
 Plumbing & Heating Svs - Hull 01482 844455
 N. Forster Plumbing & Heating - North East
 0191 4384792

AREA 5

Scrafton Heating Services Ltd - Cleveland
 01642 777747
 M. Pluves & Son - Cleveland 01642 850698
 Mike Brough - North Lakes 01946 693703
 Scott Brothers - Newcastle 01388 747333
 Heatflo - North Cumbria 01697748681
 Jeff McGerty Gas Services - South Cumbria
 01229830446 Mob. 0773 4417974
 Gilchrist Boiler Services - Inverness
 01463 242441
 T. Taylor & Co - Cleveland 01429 273481
 Utilicare - Edinburgh area 01506 517750
 Doncaster Combi - Doncaster 014277 28134

AREA 6

M. Brough South Cumbria 01946 693703
 Rapid Maintenance - Cumbria 01539 534662

AREA 7

Ed Scallen - Dundee 01382 451717
 Firth Heating - Moray (N. Scotland)
 01343 814172
 Pat Hannigan Contract Heating- Edinburgh
 0131 467 7875
 Mike Shields - Isle of Skye, Isle of Lewis. Some
 small islands and part of mainland.
 01478 640754
 (L P Gas) Service Ltd G68 0LW
 - Cumbernauld Post Codes FK, ML & G.
 01236 737414
 Johnston Combination Boilers - Glasgow
 01357 520241
 Aberdeen Boiler Services Ltd - Aberdeen
 01224 821296

Prepared on 23/06/05

PLEASE CHECK WITH YOUR LOCAL ENGINEER ON THE SERVICE THEY PROVIDE

PLANNING

Every job needs careful planning, use this leaflet and a copy of the Wickes booklet to help you price your project.

NOTES

COSTS

METRIC CONVERSIONS

Inches	Millimetres	Feet	Metres	Sq Feet	Sq Metres	Pounds	Kilograms
0.039 1	25.400	3.281 1	0.305	10.764 1	0.093	2.205 1	0.454
0.079 2	50.800	6.562 2	0.610	21.528 2	0.186	4.409 2	0.907
0.118 3	76.200	9.843 3	0.914	32.292 3	0.279	6.614 3	1.361
0.157 4	101.600	13.123 4	1.219	43.056 4	0.372	8.818 4	1.814
0.197 5	127.000	16.404 5	1.524	53.820 5	0.465	11.023 5	2.268
0.236 6	152.400	19.685 6	1.829	64.583 6	0.557	13.228 6	2.722
0.276 7	177.800	22.966 7	2.134	75.347 7	0.650	15.432 7	3.175
0.315 8	203.200	26.247 8	2.438	86.111 8	0.743	17.637 8	3.329
0.354 9	228.600	29.528 9	2.743	96.875 9	0.836	19.842 9	4.082

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