



National Association of Chimney Engineers

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CHIMNEYS, COMBUSTION APPLIANCE AND SMOKE NUISANCE

SEMINAR

CASE STUDY 2

CONTENTS

	<u>Page</u>
CASE STUDY – Ms. K. Holloway of Hampshire	2
1) NACE official report	3
2) Letter from Ms. K. Holloway	24

CASE STUDY – Ms. K. Holloway of Hampshire

1) NACE official report



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INSPECTION REPORT

COMPLAINANT: MS. K. HOLLOWAY

ADDRESS: 180 SEA FRONT

REPORT PRODUCED ON BEHALF OF:
ENVIRONMENTAL CONTROL, HAVANT BOROUGH COUNCIL,
PUBLIC SERVICE PLAZA, HAVANT, PO9 2AX

REGISTERED COMPLAINT: SMOKE NUISANCE / SOLID FUEL APPLIANCE

COMPLAINT REGISTERED AGAINST: MR. P. W

ADDRESS: 182 SEA FRONT

INSTALLATION WORKS CARRIED OUT BY:
ALL F.U, WATERLOOVILLE

NACE INSPECTION CARRIED OUT ON: FRIDAY 22ND APRIL 2016

NACE INSPECTOR: HOWARD M. CANE (NACE TECHNICAL DIRECTOR)

INSPECTION COMMENCED: 0930h
INSPECTION COMPLETED: 1800h

Areas referred to in this report are:

- A) INSTALLATION AND COMPLIANCE**
- B) LIVE LOAD TEST AND RESULTS**
- C) DOCUMENTATION**
- D) PHOTGRAPHIC AND VIDEO EVIDENCE**
- E) DIAGNOSIS**

A) INSTALLATION AND COMPLIANCE

The installation in question comprises of the following components;

1) Docherty Excelsior stainless steel twin wall sectional rigid chimney system

The chimney system has not been installed in accordance with the manufacturer's installation instructions (page 10 "External Application" refers).

The manufacturer's installation instructions clearly state that standard unsupported lengths above gutter level must not exceed 1.5m in total. The installed sections above gutter level measure 2m and are unsupported, therefore this structure is unsound and likely to fail.

Installation instructions (page 10) clearly demonstrate a system 'T' piece through a wall and not used as an offset laterally installed by the fitter and contrary to manufacturer's installation requirements.

Installation instructions (page 10) clearly demonstrate the use of a 45 degree vitreous enamel offset / elbow with sweeping access. The installed offset / elbow does not support this facility.

Installation instructions (page 10) clearly refer to an open type 'top stub' or 'rain cap' termination. Neither of these system components have been installed.

Installation instructions (page 10) clearly refer to the 'T' piece supporting a drain plug; this is to allow condensates to escape. The installed system does not support this fixture.

Manufacturer's installation guide (page 9) states;

"Any change in direction in a flue will create resistance to flue gas movement. Where the system is used for solid fuels (wood / coal) and / or oil no system can be constructed with more than two separate offsets in the chimney."

The installed chimney system has four (4) offsets and not two (2) in accordance with manufacturer's installation instructions. The flue design is convoluted and is virtually impossible to sweep, thus leading to bituminous deposits forming within the flue shaft without the possibility of maintained removal. This does not meet the requirements of the manufacturer or comply with BSEN 15287, specifically page 112, **"Chimney & flue Pipe Cleaning & Maintenance"**, Sections NC.1 through to NC.2.3.

The chimney system had not been swept from point of installation. Video surveillance clearly confirmed a thick buildup of detritus adhering to the flue wall; this material is representative of a fire risk and a further cause of additional friction within the flue shaft leading to the slowing of flue gases.

Docherty installation instructions clearly define that;

“Where the chimney system is exposed to severe coastal locations you must ensure adequate protection to the outer components of excelsior.”

We are unaware of any such protection having been made available or applied thus potentially invalidating the manufacturer’s warranties and guarantees.

2) Strap on aspirator (spinning cowl)

A non-manufactured chimney system component. This has been poorly installed and is tilted at an unacceptable angle instead of sitting vertically. Furthermore, there is an unacceptable void between the base of this cowl and the chimney system allowing turbulent air movement to disrupt flue gas speed transmitting to atmosphere. This component ‘Null & Void’s’ any warranty or guarantee relating to the chimney system and may be referred to as a ‘component marriage’.

3) Single structural wall support

This appears to be correct.

4) Single length of connecting 6” vitreous enamel flue pipe

This is approx. 15” away from a combustible surface and not in accordance with ADJ (page 33, diagram 19, 2.15 b refers);

2.15 b) Separation by shielding in accordance with diagram 19. (3 x cross dimensional value away from a combustible surface)

and;

Diagram 19, “Air space of at least 12mm between non-combustible shield and combustible material.”

There is no evidence of any such thermal spacing.

5) Single 45 degree vitreous enamel offset

No sweeping access (appliance manufacturer installation instructions

refer);

“Both the chimney & flue pipe must be accessible for cleaning and IF ANY parts of the chimney cannot be reached through the stove (with baffle / throat plate removed) a soot door (sweeping access) must be fitted in a suitable position to enable this to be done.”

The installer has not allowed for access, through either the 45 degree offset or the vertical flue connection, for sweeping in accordance with the manufacturer’s installation instructions.

The 45 degree and vertical vitreous enamel flue connections have failed to be properly gas sealed against leakage.

ADJ page 23, **“Connecting Fluepipes”** 1.33, states;

“Joints should be made gas-tight. A way of achieving this would be to use proprietary jointing accessories or where appropriate by packing joints with non-combustible rope and fire cement.”

Appliance manufacturer installation instructions also refer;

“It is essential that all connections between the stove and chimney are sealed and made air tight.”

No such material has been identified nor have the connections within the room space been properly sealed in accordance with ADJ 1.33. This represent the potential for CO and other carcinogenic gases to leak back into the living area.

6) CO detector

Not to BSEN 50291 requirements. Not hard fixed or positioned in accordance with ADJ page 41, **‘Carbon Monoxide Alarms’** (specifically 2.36 refers);

“The Carbon Monoxide detector should be located in the same room as the appliance:

a) On the ceiling at least 300mm from any wall or, if it is located on a wall as high up as possible (above and doors and windows) but not within 150mm of the ceiling.

or;

b) Between 1m and 3m horizontally from the appliance.”

The CO detector had been left positioned on the top of an adjacent TV. Prior to this it had been left on a side table. This contravenes ADJ and BSEN 50292:2002.

7) Fire board

A single sheet of material (unknown) has been fitted to the side of the twin wall chimney system within the existing plastic soffit and fascia board. This is not a fire break nor a thermal barrier, therefore a medium level fire risk. A similar material (unknown) has been used to cover the rigid chimney system where this breaches the internal block work wall within extension. This does not appear to comply with ADJ, in particular page 15, section 31 **'Non-combustible material'**;

"This is the highest level of reaction to fire performance. Non-combustible materials include:

a) any material which when tested to BS 476 – 11: 1982 (2007) does not flame nor cause any rise in temperature on either the Centre or furnace thermocouples; and

b) products classified as non-combustible in tests following the procedures in BS 476 - 4: 1970 (2007); and

c) any material classified as A1 in accordance with BSEN 13501 – 1: 2002 fire classification of construction products and building elements. Classification using data from reaction to fire tests."

8) Hunter Sonderskoven multi-fuel single door appliance, log store, top exit

The appliance does not support an ADP (Appliance Data Plate) in accordance with the CPR (Construction Products Regulation). The ADP is a legal requirement and fixed to all approved manufactured appliances. The ADP appears to have been removed from the rear of the appliance and a locating chain left hanging where the ADP should have been. I have requested a copy of the ADP from Hunter and this is attached.

There is a reference to a DoP (Declaration of Performance) and a copy is attached. There is no ECC (European Certificate of Conformity) nor an independent type test report available (although Hunter have confirmed this exists).

The appliance appears to have a 'Flue damper' fitted through the spigot (collar). The installation of this additional equipment is not referred to anywhere within the appliance installation paperwork nor is this type of flue damper referred to in ADJ.

However, Hunter have confirmed that they approve of the use of such equipment but fail to answer why this component is necessary when approved draught stabilisers are available for use where excessive and uncontrollable flue draught is experienced. ADJ makes no allowance for this element of equipment.

Furthermore, the installer did not carry out any post installation commissioning of either the appliance or the chimney system to determine if excessive flue draught was in fact evident or if the draught measured met the values required by the manufacturer. Therefore, as there are no test values or results to refer to or proof of excessive flue draught, it is impossible to quantify why the fitting of this component was ever mechanically considered necessary.

Under a live load test it was confirmed that the damper referred to had in fact moved partially within the spigot (collar). As this component is impossible to control and not 'counter balanced' as with a draught stabilizer, it could, if left unnoticed, potentially suffocate the combustion process leading to poor flue draught / smoking to occur. This would additionally allow for the possibility of CO to leak out of the appliance and enter the living space.

Ceramic door rope had, in areas, begun to come away in tufts. This is unacceptable in an appliance of only six months age and representative of a release of carcinogenic gases through a failure of one metal surface to seal properly against another. The appliance door handle demonstrated considerable mechanical movement that could cause the door to either jamb or not close properly.

The top air control (secondary) appeared to be extremely loose with considerable movement. The bottom (primary) air control appeared to be stiff and difficult to operate. With both air controls open little difference in flue gas movement was experienced.

The manufacturers APD clearly states - Minimum distances to Combustible Material:

- a) Behind the appliance 650mm (Mr. Walker confirms this as 510mm).
- b) Clearance to the sides 300mm (Confirmed as maximum 150mm).
- c) To furniture 900mm (Television well within this requirement and a risk).

The top door pin was identified as having shifted upwards and, as with the bottom door pin, likely to 'unscrew' after a further period of use, with the door itself likely to become detached and thus the possibility of the door falling onto the glass hearth.

9) Manthorpe air ventilator

The installer states that he fitted a Manthorpe G900TR although the official Manthorpe web site does not support this product. A G900 5" core type vent appears to be the closest product to that inspected. The ADP appears to confirm the appliance is 7kw, therefore the calculus in accordance with ADJ (550mm.sq for every KW above 5) would suggest air ventilation equivalent to 1,100mm.sq = 27.5mm x 27.5 or 4.1/4" making the size of ventilator installed compliant.

The G900 (copy attached) clearly demonstrates the manufactured wall sleeve / trunking is fixed firmly to the rear of both ends of the ventilator covers. The block work wall that the ventilator has been installed through is of cavity construction therefore the entire product should be air tight to avoid leakage of combustion air into the fabric of the building. The ventilator path can be identified as not properly installed nor connected at either end, in accordance with the manufacturer's instructions. It has been shoddily fitted with considerable gapping at either end, allowing for air discharge other than into the room where the appliance has been installed.

The air ventilator has been placed at the rear of the appliance thus serving as a potential fire risk (plastic). This is not in accordance with ADJ specifically diagram 12, page 20 indicating four various entry air routes other than at the rear of an appliance.

BS 493:1995 '**Specification Air Bricks and Gratings for Wall Ventilations**' refers;

"Vents should not be located externally where they can become easily blocked or flooded or in a position where contaminated air may become entrained e.g. in a car port or near a flue terminal from a GAS or oil fired appliance."

The ventilator has been installed approx. 1m from a gas flue discharging to atmosphere and at low level, therefore, given the cul-de-sac environment (vent is also less than 1m away from a fence) and CO discharging directly in line with the existing air ventilator it is inevitable that ingress of CO directly into the property will occur. This is not in accordance with BS 493:1995 or BSEN13141-1:2004.

10) Glass hearth

A corner glass hearth (with no kite marking, shatter proof values, thermal failure level or structural load capacity identification) has been installed. The only compliant reference is that this component meets the requirements of ADJ at approx. 12mm height.

11)Chimney data plate

This is a mandatory requirement with the plate hard fixed. Photo evidence confirms this ID plate to be standing up on top of the distribution board. The details on the plate are not at all clear. The appliance is a multi-fuel therefore it can be used to burn coal as well as wood. The installer has referred incorrectly to wood as a single fuel source. The installer does not refer to the rigid stainless system as either 316 or 904 grade.

B) LIVE LOAD TESTS AND RESULTS

The day was chilly, wet, raining with moderate coastal winds.

Mr. W (property owner) referred to a wicker basket full of split logs which he confirmed were dry. The entire basket was tipped out and random moisture meter readings taken; moisture values ranged from 5% to 14%. The timber had been supplied by a well-known local distributor and would appear not to have been seasoned.

Humidity (RH) taken prior to Test 1 at 62.5%. Test 1 commenced at 1433h.

Mr. W was asked to 'fire up' the appliance. Both primary and secondary air ventilation controls were opened fully.

A box of petroleum fire lighters was then produced with 9 pieces broken off and spread over the combustion chamber. Mr. W then proceeded to 'pile' the remainder of the combustion chamber with pine kindling of various sizes (23 pieces) before lighting up. The door appeared to be left open and I inquired why he felt this was necessary; he indicated this apparently aided draw.

Within moments of 'lighting up' those attending clearly identified smoke fumes within the combustion chamber filling up the view of the burning material. This grew in intensity over the next few minutes with petroleum fumes blackening the door glass. Mr. W then added copious amounts of split timber increasing visible smoke within the combustion chamber and thereby helping to suffocate the appliance. This action did not immediately increase combustion.

Mr. W did not appear to understand correct air control operation (live load) that most certainly would have impacted upon use and subsequent emissions. After approximately 45 minutes, a further humidity reading was taken showing a drop in RH to 41/43%, with the appliance temperature running at 60C / 121F.

Visual confirmation of dense black smoke was seen to emit from the flue terminal by those attending. This dense heavy material was then seen to drift over the boundary to number 180 Sea Front.

The fire was then allowed to almost die out before the remaining material was removed.

Humidity (RH) taken prior to Test 2 at 47.5%. Test 2 commenced at 1535h.

Organic fibre firelighters were used (not petroleum based) approximately 6 small cubes placed equally into the bottom of the combustion chamber. Kiln dried hardwood kindling cut into nominal 8" lengths was placed on top with a further 6 pieces of smokeless coal added as an ignition system only.

Once ignition had occurred, **a single wood fuel block** (briquette) was introduced.

Wood fuel briquettes are produced using the kiln dried residue from FSC certified forests. Briquettes are formed under high pressure at around 300c resulting in the natural resins in the wood softening and binding the particles together to form a solid wood block.

The sawdust material used has been processed to remove almost all of the moisture content. The end product is a highly dense solid wood briquette which will burn very hot, producing large amounts of direct heat and not heat wasted burning off hydrocarbons from moist timber.

Briquettes are created from natural waste that would have been disposed of via landfill or incineration. They are effectively recycled timber which by their very nature reduce the requirement to fell plantation timber for domestic heating use and thus are environmentally friendly.

Compressed kiln dried briquettes are free from all known chemicals, preservatives and bonding additives. The lignin from the wood acts as a natural bonding agent forming a 100% pure wood briquette.

Briquette specification;

- a) Calorific value: 18.2mj/kg (about 4350kcal/kg).
- b) Ash content: 0.27%.
- c) Average moisture content (if stored in a dry environment) 0%.
- d) Virtually 'smoke free'.
- e) Very hot / long burn rate.

Confirmed moisture reading (briquette) before combustion 0%.

After approximately 55 minutes a further humidity reading was taken showing a considerable drop in RH to 21% / 23% indicating far less moisture being absorbed into the surround air with the appliance temperature running at an increased 90C / 210F.

Those attending confirmed little, if any, visible smoke emanating from the external chimney system during Test 2

On both Test 1 and Test 2 the appliance door was cranked open marginally, external doors were opened to allow for increased air flow through the appliance in view of the struggle to maintain a constant burn cycle. This action confirmed an immediate increase in fuel combustion therefore confirming either the appliance was not mechanically operating properly (allowing enough combustion air to invade the combustion chamber) or the air ventilation provided was not sufficient enough given the placing of this at the rear of the appliance.

Operating any closed appliance (stove) with the doors open will of course greatly reduce its efficiency. In the test environment it was essential to bring this procedure into play for the reasons explained.

Evidently Mr. W must have been operating his appliance at extremely low temperatures, although confirming how hot his appliance would get, test evaluation results show the appliance actually running at negligible (low burn rate) temperatures. It was explained to Mr. W that overloading his appliance with incorrect firelighters, kindling (pitch pine) and then suffocating the entire appliance with copious amounts of fuel, as well as incorrect operating of the appliance, was obviously going to result in issues of one type or another. This scenario is of course tantamount to operator abuse resulting in the smoke nuisance issues experienced by the neighbour's residing at number 180 Sea Front.

Heat to room equivalent over time is not achieved by either overloading a combustion chamber or by producing enormous amounts of flame. Heat should be produced slowly by attaining small, but very hot fires, that can be reasonably controlled by using appliance air controls properly (given these work as they should do).

Mr. W having confirmed the dry environment his logs were stored in demonstrated an open fronted shed type affair with a split fence to the rear where his fuel was stored. It was explained to him seasoned timber had to be kept in a vented but covered environment that allowed drying to occur without ingress of moisture from weather or condensation. This was unlikely given the poor storage facility and that one entire side happened to be open to the elements throughout the wettest months.

C) DOCUMENTATION

Copies or extracts of the following are included in Appendix A:

- 1) DOCHERTY CHIMNEY SYSTEMS – EXCELSIOR INSTALLATION INSTRUCTIONS.
- 2) APPLIANCE DATA PLATE (ADP).
- 3) MANTHORPE AIR VENTILATOR INSTRUCTIONS.
- 4) MANUFACTURERS DoP CERTIFICATE.
- 5) CHIMNEY DATA PLATE (CDP).
- 6) REFERENCE PAGE FROM SONDESKOVEN INSTALLATION DOCUMENT.

D) PHOTOGRAPHIC AND VIDEO SURVAILIENCE

See attached DVD.

E) DIAGNOSIS

The installation at 180 Sea Front carried out by 'All F. U', a HETAS registrant, does not meet numerous requirements of the Building Regulations / Approved Document J and is therefore not compliant. It could additionally be argued that the installation is far from meeting minimum consumer safety standards and therefore represents an actual danger to the building occupants.

The installation has been officially condemned by NACE for the reasons given within this report.

Overall, the installation design, component chimney system build and method of assembly, lack of sufficient combustion air, poor operator use of the appliance, poor quality medium moisture level fuel, incorrect firelighter material and questionable appliance air control operation have jointly contributed to the issue of visible smoke.

Very little thought by either the installer / fitter or the property owner had been employed prior to the installation proceeding given the topography of the property and its relationship to sea front exposure and to historical weather conditions over the winter months, these circumstances should have been properly interpreted by the installer / fitter. It should have also been obvious to the installer / fitter and property owner from the outset there would be considerable and at times uncontrollable natural weather occurrences that would have an enormous impact on appliance operation and fume dissipation, this has now been proven to be the case.

The final test undertaken clearly demonstrated that after a period of 55 minutes burning materials provided by NACE a visible lack of smoke emitting from the chimney system terminal was experienced by those attending thus resolving to a greater degree smoke irritation caused to the neighbouring property.

During both tests it was extremely difficult to increase the appliance temperature or to monitor more than minimum changes in flue draught (cold 4pa + / 3pa -) (hot 11pa + / 8 -). These values confirmed several worrying elements;

1) Insufficient combustion air entering the combustion chamber causing the appliance to struggle reaching optimal temperature and consequently lower flue gas speed leading to condensates forming in the flue shaft and / or smoking of the appliance to occur.

and;

2) Flue shaft pressure equalization. Consequently, enough downdraught to substantiate appliance up draught issues affecting the operation of the appliance and flue gas exhaust ejecting safety to atmosphere.

The convoluted chimney design, in conjunction with an un-swept flue and incorrect chimney system terminal, have no doubt helped to cause the current smoke nuisance issue.

The installer had failed to properly register the installation of the chimney system with HETAS and had only made a minor reference to this 'controlled service' within his on-line registration. HETAS have confirmed they will now be looking at this installer's previous work and that if any installation he has carried out has not been properly recorded he will be required to then comply.

The supplier of the glass hearth has failed to provide any consumer related information relating to safety or compliance or that the hearth meets the minimum requirements of AD-7 or AD-N.

F) RECOMMENDATIONS

Corrective and remedial direction with regard to the following points have been made to the owner operator;

- Use of correct firelighter material.
- Use of correct hard wood kindling.
- Control of moisture ingress into wood fuel left outside and unprotected.
- Proper re-fuelling of appliance in accordance with manufacturer's instructions.

- Purchase and regular use of a Moisture Meter.
- Purchase of magnetic Thermometer.
- Achieve manufacturers correct appliance temperature range.
- Regular testing of all (delivered) wood fuel.
- Regular maintenance of appliance.
- Regular (certificated) chimney sweeping.
- Removal of entire chimney system from side elevation.
- Prohibited use of convoluted offsets.
- Prohibited use of any non-manufactured chimney system component.
- Glass hearth to be removed until compliant and safety audit trails confirmed.
- Air ventilator to be removed and re-sited as well as installed compliantly in accordance with the manufacturer's installation instructions.
- Ceramic door rope to be removed and replaced.
- Fire barriers to be installed in accordance with ADJ and ADJ minimum consumer safety requirements.
- Re-positioning of entire chimney system to rear of property through extension roof.
- Design of new chimney system and component parts to be approved by NACE.
- Associated component use (CE approved) to be monitored by NACE.
- NACE to be present and to monitor entire (audit) re-instatement process.
- Installer to take mechanical guidance at all times during re-instatement works from NACE.
- NACE to carry out final approval of re-instated works, that these meet the Building Regulations and to carry out live load testing to include p/a values before a CoC is issued.
- Designated fuel to be used (confirmed in writing by owner).
- Correct storage facility for wood fuel (if delivered) to be provided and construction monitored by NACE.

Letters to Mr W and the installer 'All F. U' will be forwarded, clearly indicating that the above requirements must be met and that Havant EH formally endorses these requirements through the intervention and on-site supervision of NACE before any final certification is offered or accepted by the property owner.

NACE will forward to Havant EH an official installation report and photographic evidence of compliance confirming that standards in accordance with regulatory requirements have been met and complied with as well as commissioning details and video evidence.

Report Ends

APPENDIX A

Carbon Monoxide Alarm

In rooms where a solid fuel appliance is installed it is a legal requirement to fit an audible CO alarm conforming to BS EN 50291, positioned in accordance with Building Regulations Approved Document J.



Warranty terms and conditions

Docherty Group chimney systems are manufactured to the highest quality standards. Under normal operating conditions, Excelsior provides many years of reliable service and carries a 10 year conditional warranty depending on application, installation and maintenance.

The components within the range can be vulnerable when exposed to the products of combustion from solid fuel appliances and this is especially true for terminals. Condensate collectors are also vulnerable, particularly if the flue system is not regularly maintained and cleaned. These components are considered 'incidental' and their life expectancy will vary depending on location, application, fuel usage and maintenance. For this reason, these fittings are covered by a 2 year warranty and not the 10 year conditional warranty.

Excelsior carries a 10 year conditional warranty for any defect due to faulty manufacture, this is provided the system has been installed in accordance with the installation instructions, and has been used for the purpose it was designed for. Furthermore, the system must be regularly cleaned, maintained and inspected.

This should be carried out at least once per year, and more regularly if the appliance is used continuously or frequently, by a member of one of the HETAS recognised chimney sweep associations (APICS, GMCS or NACS) or a HETAS Approved Engineer. Written documentation to demonstrate the inspection and cleaning of the chimney must be kept to validate the ten year warranty. When burning mineral fuel or smokeless fuel in your appliance, care should always be taken to use a high quality fuel. Only HETAS or SFA (Solid Fuel Association) approved fuels must be used with Excelsior. For guidance on fuel choices please visit www.hetas.co.uk.

Under no circumstances should an appliance be located where there is the potential of chemical contamination of the combustion air. Where the chimney system is exposed to severe coastal locations, you must ensure adequate protection to the outer components of Excelsior. A chimney fire will invalidate the warranty; in the event of a chimney fire it is always advisable to replace the complete chimney system.

Installation Guide

Also see illustrations pages 10-11

Chimney and flue design

The chimney and flue design is the responsibility of the engineer or installer and should conform to the requirements of Approved Document J and, where appropriate, BS EN 15287 part 1.

Any variation will require the designer to ensure the performance of the chimney meets the requirements of the appliance by calculation using the methods given in BS EN 13384 part 1 or any proprietary software program based on this standard.

Regulations and standards

The regulations and standards covering the design and installation of a chimney system in the UK are as follows:

Building Regulations

England and Wales – Approved Document J - Combustion Appliances and Fuel Storage Systems.

Scotland – Scottish Building Standards Technical Hand Book Section 3.

Northern Ireland – Building Regulations Part L – Combustion Appliances and Fuel Storage Systems.

Standards

BS EN 15287 part 1 - Chimneys. Design, installation and commissioning of chimneys Part 1: Chimneys for non-room sealed heating appliances.

BS EN 13384 part 1 - Chimneys. Thermal and fluid dynamic calculation methods.

Flue sizing

The sizing of flues for appliances should be based on the type of fuel and the appliance to be used.

• Gas Appliances

In the case of gas appliances the Building regulations Approved Document J table 5, the gas safety in use regulations and in all cases as required by the manufacturers' installation instructions.

• Oil Appliances

Flues for oil appliances should be sized in accordance with the requirements of Approved Document J Paragraphs 4.4 and 4.5.

• Solid Fuel Appliances

The size of flues for solid fuel appliances should be in accordance with the requirements of Approved Document J Paragraphs 2.4 to 2.7 and as given in table 2 of ADJ. For solid fuel appliances with back or side flue outlet, the maximum permitted length of horizontal chimney or flue pipe is 150mm.

Where the chimney passes through a wall, the opening must be lined with a wall sleeve.

The termination height of the chimney will depend on appropriate regulations and standards. The connection between a connecting flue to Excelsior must be made in the same room as the appliance. According to the UK Building Regulations, the chimney must be accessible for inspection and cleaning. We recommend the inclusion of a tee to provide easy access. Each chimney section and connected fittings shall be used as manufactured for assembly on site without any alteration. Please make sure that all elements are installed the right way up.

The system must be adequately supported with elements supplied by Docherty Group. The support components must be used at intervals depending on the load bearing criteria quoted on pages 14 and 15. Wall brackets are not load bearing and should be used to provide lateral stability only, and at intervals not exceeding the criteria quoted.

Where the chimney passes through a combustible floor, a ventilated fire stop plate must be used both above and below the aperture. A support clamp supports the weight of the chimney on the upper fire stop plate. Both plates must be secured using 6mm screws. The aperture must be constructed to maintain 50mm distance from the outer wall of the chimney to combustible materials.

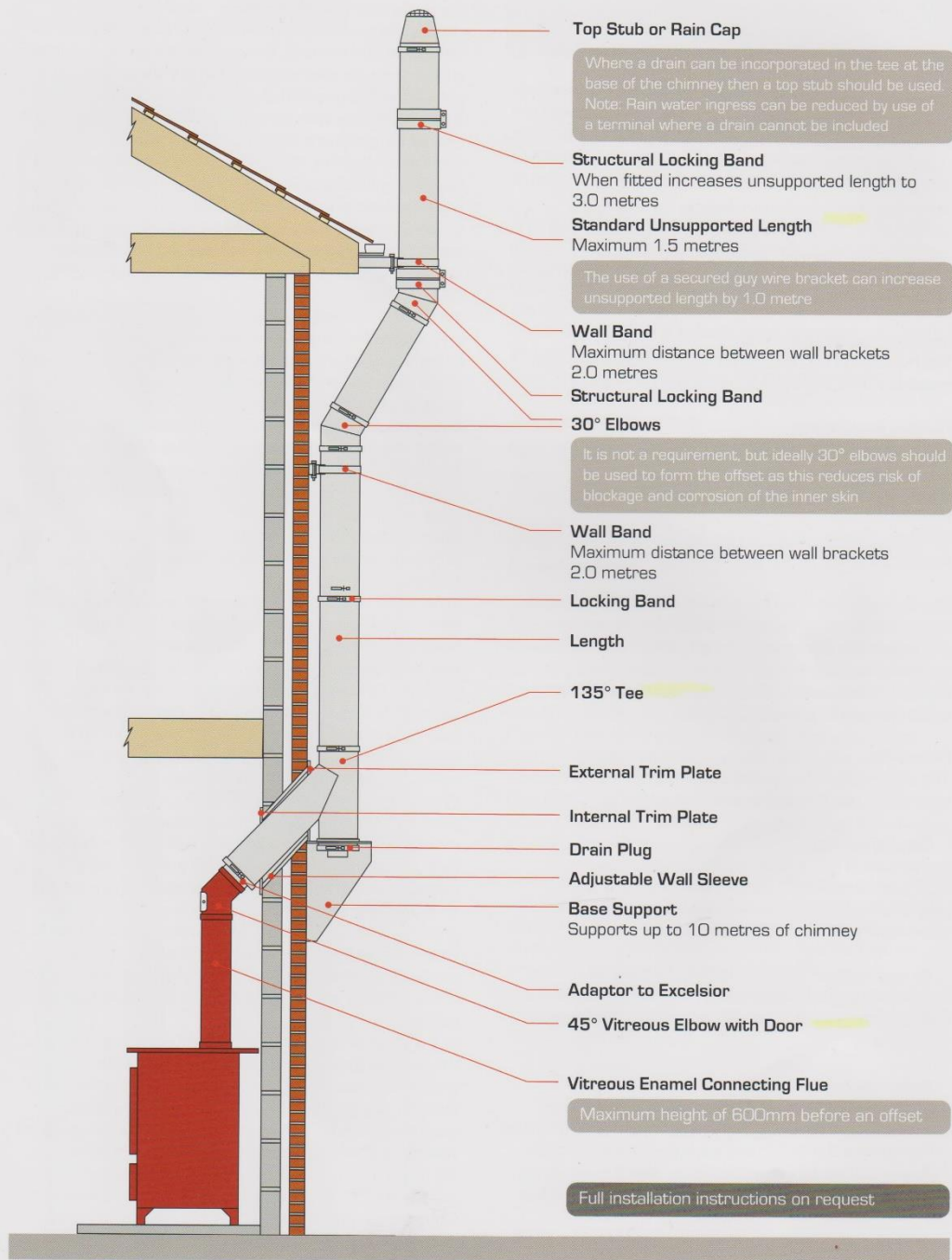
The aperture must additionally be lined with a fire resistant board. All subsequent floors having combustible floors must be treated in this way.

Chimney joints must not be positioned in the thickness of floor or ceiling joist spaces or within 50mm of floor or ceiling.

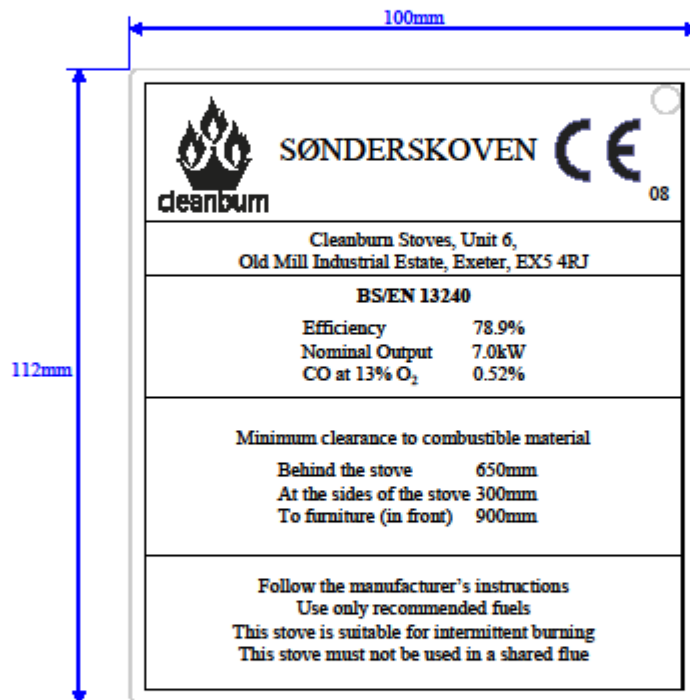
Where the chimney passes through any occupied space other than the room in which the appliance is installed, it must be fully enclosed with fire resistant material maintaining the 50mm clearance to the outer wall of the chimney. The enclosure is to prevent damage to the chimney, to prevent human contact and to ensure no combustible material can be placed too close to the chimney. The enclosure must have an access panel measuring at least 100mm x 100mm.

Where the chimney passes through a roof space, it is essential that it is adequately supported by bracing to roof timbers. If there is a chimney run of more than 1.5m from the ceiling support to the roof support, use a bracing bracket and rigid stays for such application. Also, provision must be made to ensure that no accidental placement of combustible product can occur within 50mm of the external casing of the chimney; for example, a mesh or screen around the chimney. This must cover the first 1m of the chimney and must go down to the upper face of the ceiling.

Any change of direction in a flue will create resistance to the flue gas movement. Building Regulations do not allow any part of the chimney system to form an angle greater than 45 degree from the vertical. Where the system is used for solid fuels and oil, no system can be constructed with more than two separate offsets in the chimney. If a 90 degree tee is used on the back of the appliance, this constitutes one offset. The length of chimney between two elbows must not exceed 20% of the total length of the chimney.



DOCHERTY CHIMNEY SYSTEMS – EXCELSIOR INSTALLATION INSTRUCTIONS 3



PART No : HCE09/067
 Sønderskoven Data Plate
 Revision A : 18/06/2008

APPLIANCE DATA PLATE (ADP)

Manthorpe Building Products		Product Information Sheet			
5" Core Drill Ventilator		CODE G900			
Description					
<p>The Manthorpe 5" Core Drill Vent is designed predominantly for use when ventilating a gas appliance, although can be used to supply general through wall ventilation as well. The kit includes a cowl vent for exterior use, a louvre grille for interior use, a 350mm length of pipe duct and an optional anti-draught baffle which reduces the airflow and also the feel of a draught through the vent. Without the use of the anti-draught baffle, the free area of the vent is 100cm², enough to supply an appliance with a rated input of 27kW or 92,000 Btu/h (in accordance with BS5440 Pt.2:2000). With the anti-draught baffle installed, the effective free area of the vent is reduced to 70cm² (BRE tested) providing enough ventilation for an appliance with an input rating of 21kW or 71,500 Btu/h. The vent can easily be fitted in both refurb and new build situations with the use of a 5" (127mm) diameter core drill.</p>					
		References			
		BS5440 Pt.2:2000 BRE Certificate			
		Specification			
Colours - Cowl		Brown Terracotta White			
Louvre always supplied in white					
Packing Details		1 kit per box			
Weight		0.650kg			
Material		Polypropylene			
Manufacturing Process		Injection moulded			
MANTHORPE BUILDING PRODUCTS LTD MANTHORPE HOUSE BRITAIN DRIVE CODNOR GATE BUSINESS PARK RIPLEY DERBYSHIRE DE5 3ND		TEL: 01773 514 200 FAX: 01773 514 262 EMAIL: bpsales@manthorpe.co.uk WEB www.manthorpe.co.uk	DRN M.R. Date 26.05.09 The company maintains a policy of continuous development of its product range and reserves the right to amend the specification without notice.	DRG No MBP 8261	Issue F

MANTHORPE AIR VENTILATOR INSTRUCTIONS



Declaration of Performance according to Regulation (EU) 305/2011

- 1) *Unique identification code of the product type – HCE09*
- 2) *Type – Cleanburn Sanderskoven*
- 3) *intended Use – Roomheater burning Solid Fuel without Hot Water supply*
- 4) *Manufacturer – Cleanburn Stoves Ltd, Trevilla Park, Slaughterbridge, Camelford, PL32 9TT*
- 5) *Authorised Representative – NA*
- 6) *Systems of assessment and verification of constancy of performance of the construction product as set out in Annex V – System 3 and System 4*
- 7) *The notified laboratory "Gastec at CRE, No. 0558" performed the determination of the product type on the basis of type testing under system 3 and issued test report 6272.*
- 8) *Declared Performance:*

Harmonized Technical Specification	EN13240:2001/A2:2004/AC:2007
Essential Characteristics	Performance
Fire Safety	
Reaction to Fire	A1
Distance to Combustible Materials	Minimum distances in mm Rear = 650 Sides = 300 Front = 900
Risk of burning fuel falling out	Pass
Emission of combustion products	CO 0.52%
Surface Temperature	Pass
Electrical Safety	NA
Cleanability	Pass
Maximum Operating Pressure	- bar
Flue gas temperature at nominal heat output	254°C
Mechanical resistance to carry a chimney/flue	NPD
Thermal output	
Nominal Heat Output	7.0 kW
Room Heating Output	7.0 kW
Water Heating Output	- kW
Energy Efficiency	Net 78.9%

9) *The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 8.*

This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer:

Name:

S. CLATHARSKY

Position:

SALES DIRECTOR

Place and date of issue:

29th April 2016

MANUFACTURERS DoP CERTIFICATE



IMPORTANT SAFETY INFORMATION

This notice plate must be fixed in position. Do not remove.

Property address

182 SEAFRONT PO11
HAYLING ISLAND

Appliance

CLEARBURN
SONOERSKOUEN

The hearth & chimney located in

LOUNGE.

Is suitable for

WOOD

Chimney liner type & size

BLACK 6" TWIN
FLUE

Chimney designation

LOUNGE / OUTSIDE
WALL

Installation date

24/09/15

Installer business name & contact details

SE MALBY
1 OAKHURST DRIVE WATERLOOVILLE
PO7 7PN

CHIMNEY DATA PLATE (CDP)

Installation

Chimney

The chimney height and the position of the chimney terminal should conform to Building Regulations.

Check that the chimney is in good condition, dry, free from cracks and obstructions. The diameter of the flue should not be less than 150mm and not more than 230mm. If any of these requirements are not met, the chimney should be lined by a suitable method.

The chimney must be swept before connection to the stove.

Where the chimney is believed to have previously served an open fire installation, it is possible that the higher flue gas temperature from the stove may loosen deposits that were previously firmly adhered, with the consequent risk of flue blockage. It is therefore recommended that the chimney be swept a second time within a month of regular use after installation.

If you have any doubts about the suitability of your chimney, consult your local dealer/stockist.

If there is no existing chimney then either a prefabricated block chimney in accordance with Building Regulations Approved Document J, or a twin-walled insulated stainless steel flue to BS 4543 can be used. These chimneys must be fitted in accordance with the manufacturer's instructions and Building Regulations.

Flue Draught

A flue draught of minimum 1.2mm to a maximum 2.5mm water gauge is required for satisfactory appliance performance. The flue draught should be checked under fire at high output. If it exceeds the recommended maximum, a draught stabiliser must be fitted so that the rate of burning can be controlled and to prevent over firing. If the reading is less than the recommended minimum then the performance of the appliance will be compromised.

Connection to the Chimney

An existing fireplace opening can be bricked up or sealed with a register plate. A short length of flue pipe of a minimum 127mm internal diameter may then be used to connect the stove to the chimney. This flue pipe should be of 316 grade stainless steel or vitreous enamelled, nominal thickness 1.2mm. Ensure that the pipe end is no closer than 76mm to the side or rear chimney walls.

Ideally, the old fireplace should be filled in so that there is a smooth streamlined entry into the flue way.

The length of any horizontal run of flue pipe must not exceed 127mm.

* It is essential that all connections between the stove and chimney-flue are sealed and made airtight. Both the chimney and flue pipe must be accessible for cleaning and if ANY parts of the chimney cannot be reached through the stove (with baffle removed), a soot door must be fitted in a suitable position to enable this to be done. *

Air Supply

The room or space containing this appliance needs a permanent, unobstructed air opening of at least 1650 mm².

If a draught stabiliser is fitted, the air opening should be at least 4050 mm². Due consideration should be given to air requirements for any other appliances in the same room or space.

2) Letter from Ms. K. Holloway

Mr H. M. Cane
National Association of Chimney Engineers
PO Box 849
Metheringham,
Lincoln
LN4 3WU

Dear Mr Cane,

Our thanks seem totally inadequate to express our gratitude to NACE for your stalwart support and guidance. Our next door neighbour installed a twin flue multi fuel fire and we became subjected to the 'hell' of regular smoke contamination throughout our home during the winter of 2015/16. As one of us is suffering from serious heart and lung problems you may well have also saved a life!

It took eleven months less one day from the date of installation in September 2015 to have the chimney removed by our neighbour and his installer in August 2016. This would not have happened without reference to your extensive and detailed technical report which contained all the evidence needed to prove non-compliance. That report changed a civil issue of 'Statutory Nuisance' to one of 'Enforcement' a criminal matter which even our neighbour could not ignore, or one might have thought.

Assuming such successful outcomes may be rare we thought we would summarise events and share our views should you wish to use our experience as a future case study.

We have lived for the past twenty years in a large Edwardian house on the seafront on the south coast, very exposed to the prevailing westerly winds. The neighbour in question lives in a smaller self built house on the west side of our property. He decided to place an external twin flue chimney for his new free standing multi-fuel fire on his east wall a distance of some 5 metres away, opposite our front door. There was no consultation, he authorised his installer to trespass on our property to erect the chimney whilst we were away from home. Upon returning we were presented with a 'fait accompli', and were immediately subjected to intensive smoke ingress into the house when the fire was tested. This then became our nightmare every time the fire was lit.

From September 2015 onwards we were victims of black smoke contamination and were totally ignorant on where to seek help and advice to understand what options were open to us. As retired professional people we are well able to undertake research and it became increasing apparent that there was very little help available to the general public, we entered a technical and bureaucratic minefield. It seems we are amongst an increasing number of desperate people trying to find answers to the same problem, since the installation of wood burning fires has become such a fashion item.

We became aware that there is environmental protection legislation and we sent photographs of the chimney to our local building control department who advised us that as a HETAS certificate had been issued the installation was compliant. Our complaint was therefore dealt with by Environment Health as a smoke 'Nuisance.' They required the completion of a regular Event Log, detailing date, time, effect of occurrence etc. We made almost daily calls to EH in an attempt to persuade an EH Officer to witness the contamination with little success. Imagine our shock to be told that EHOs do not work outside normal office hours or at weekends knowing this is when these fires are normally lit.

It took until November 2015 to get formal recognition that the Nuisance did exist but not until April 2016 before a Statutory Abatement Notice was served. This was only possible because one EHO in the team felt committed enough to respond to our persistence and come to our home at the weekend and witnessed the severity of the problem.

During our research we spent hours talking to suppliers, installers, any professional body we could find and other councils, some of whom take the problem very seriously. Amongst the 'experts' we spoke to were HETAS the SFA, HPA, BFCMA and some specialist consultant firms who measure the smoke contamination. It was not until we contacted NACE did we begin to get comprehensive, competent, practical advice and guidance. We were lucky to find you! NACE is not a household name but you are deserving of a much higher public profile because of your ability to perform a range of roles in this technically complex and fragmented field.

We were also surprised to discover that the local building control department have surrendered their authority to HETAS and could not question the quality of the installation once a HETAS certificate of compliance had been issued. In spite of legislation to protect the private citizen from being subjected to smoke contamination the council can only act when non compliance is proven yet they do not have the means to do so. The installer, normally the supplier of the equipment, is trained by and registered with HETAS. They surely have a vested interest to support their installers and by implication cannot be independent. The quality of installations is such a variable NACE are ideally placed to fulfil a badly needed audit function which HETAS obviously cannot.

For us the most serious issue was a health one. Medical evidence supported the detrimental effect of smoke contamination on a serious heart problem and chronic lung condition suffered by one of us, which could actually be measured. We had written two separate letters to our neighbour to explain this, which he chose to ignore other than to experiment with alternative fuels, resulting in us having red swollen eyes and sore throats. The stress and distress can so easily be underestimated by the environmental health department, they did not want to address our case from a health perspective regardless of the medical evidence available. They said the medical route was too complex and expensive so kept focus on the nuisance value. Only NACE recognised the impact these medical problems were having on us.

Eventually it became apparent that the local authorities just did not have the expertise nor were they specifically qualified to deal with such problems as constant smoke contamination and its effects, we suggested that they consider contacting you for expert technical advice. They did so and with the agreement of our neighbour you were commissioned by EH and you were able to inspect and report on this installation. This resulted in the production of the NACE Technical Report at the end of April 2016. The report clearly identified the faults, both with the fire and the chimney. It noted the way the equipment was installed, identifying the subsequent failures in maintenance and the ongoing mismanagement of the fire whilst being operated by our neighbour. All of this reflected ignorance by all parties involved leading to a non-compliant fire and chimney installation which NACE was able to prove even with the assurance of a HETAS certificate which was obviously issued erroneously.

The fire was not lit throughout the summer months and we assumed changes would be made but our neighbour chose to ignore advice from NACE and environmental health. We received a letter in August 2016 from him explaining his intention to use the fire again during the coming winter months. As a result we decided we would take legal action and seek an Injunction. We also decided to challenge building control once more but now with confidence in the strength of your report findings. We discovered the NACE report was held in the Environmental Health Department and not yet seen by them. Once building control had studied it, based on your irrefutable technical competence, they accepted the installation was totally non-compliant and acted immediately. Within 48 hours the chimney was removed by the same company and fitter that had previously erected it.

In conclusion we have learned much from our experience. In general, the public believe that installing and running a multi-fuel fire and chimney is a simple action. Whilst there may be a wealth of information available on the internet the average person has no idea how technically complicated this is. How much has to be taken into consideration, ranging from the quality of the equipment and location of the chimney, to the choice of cowl and who installs it. It would seem that Installers need to be better trained as do owners once the fire is fitted and operating. We would argue that consultation with nearest neighbours about where chimneys are being positioned should be mandatory.

NACE seem perfectly placed to draw up relevant technical training programmes for those who install and also to train local authorities, in order that they can be more proactive when dealing with problems and disputes which are increasing in numbers. Installers need to be very competent indeed and withstand any pressure from their customers who might wish to deviate from technically correct procedures. The comfort customers might have from the issuance of a HETAS certificate in our opinion is just not sufficient.

We now feel we have got the peace and enjoyment of our home assured once again, we would have faced a significant legal battle as well as ongoing risks to our health and well-being without your interventions. You were always a calm reasoned and well-informed voice when dealing with our distress and frustrations, ensuring that we at least understood the rules and regulations, as well as some of the technical issues we would have to deal with. Without your considerable expertise we would still be floundering and looking for help. We think NACE should be a government sponsored national authority to which all others in the field should defer.

Yours sincerely,

Kathryn Holloway

K. M. Holloway (Mrs)

23rd September 2016