

**TCP/11/16(243)**

**Planning Application 12/01396/FLL – Installation of a biomass boiler and flue (in retrospect) at Tayside Hotel, 51-53 Mill Street, Stanley, PH1 4NL**

**PAPERS SUBMITTED  
BY THE  
APPLICANT**





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Email: [onlineapps@pkc.gov.uk](mailto:onlineapps@pkc.gov.uk)

Applications cannot be validated until all necessary documentation has been submitted and the required fee has been paid.

Thank you for completing this application form:

ONLINE REFERENCE 000060927-001

The online ref number is the unique reference for your online form only. The Planning Authority will allocate an Application Number when your form is validated. Please quote this reference if you need to contact the Planning Authority about this application.

## Applicant or Agent Details

Are you an applicant, or an agent? \* (An agent is an architect, consultant or someone else acting on behalf of the applicant in connection with this application)

☐ Applicant ☒ Agent

### Agent Details

Please enter Agent details

Company/Organisation:

Cockburn's Consulting

Ref. Number:

First Name: \*

Brent

Last Name: \*

Quinn

Telephone Number: \*

07708971120

Extension Number:

Mobile Number:

Fax Number:

Email Address: \*

[brentquinn123@gmail.com](mailto:brentquinn123@gmail.com)

You must enter a Building Name or Number, or both:\*

Building Name:

Building Number:

29

Address 1 (Street): \*

Ryehill Terrace

Address 2:

Town/City: \*

Edinburgh

Country: \*

UK

Postcode: \*

EH6 8EN

Is the applicant an individual or an organisation/corporate entity? \*

☐ Individual ☒ Organisation/Corporate entity

## Applicant Details

Please enter Applicant details

Title:	<input type="text" value="Mr"/>
Other Title:	<input type="text"/>
First Name:	<input type="text" value="William"/>
Last Name:	<input type="text" value="Twaddle"/>
Company/Organisation: *	<input type="text" value="Tayside Hotel"/>
Telephone Number:	<input type="text"/>
Extension Number:	<input type="text"/>
Mobile Number:	<input type="text"/>
Fax Number:	<input type="text"/>
Email Address:	<input type="text"/>

You must enter a Building Name or Number, or both:\*

Building Name:	<input type="text" value="Tayside Hotel"/>
Building Number:	<input type="text"/>
Address 1 (Street): *	<input type="text" value="Mill Street"/>
Address 2:	<input type="text"/>
Town/City: *	<input type="text" value="Stanley"/>
Country: *	<input type="text" value="Perthshire"/>
Postcode: *	<input type="text" value="PH1 4NL"/>

## Site Address Details

Planning Authority:	<input type="text" value="Perth and Kinross Council"/>
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Full postal address of the site (including postcode where available):

Address 1:	<input type="text" value="Tayside Hotel"/>	Address 5:	<input type="text"/>
Address 2:	<input type="text" value="51 - 53 Mill Street"/>	Town/City/Settlement:	<input type="text" value="Perth"/>
Address 3:	<input type="text" value="Stanley"/>	Post Code:	<input type="text" value="PH1 4NL"/>
Address 4:	<input type="text"/>		

Please identify/describe the location of the site or sites.

Northing	<input type="text" value="733279"/>	Easting	<input type="text" value="310875"/>
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## Description of the Proposal

Please provide a description of the proposal to which your review relates. The description should be the same as given in the application form, or as amended with the agreement of the planning authority: \*  
(Max 500 characters)



## Type of Application

What type of application did you submit to the planning authority? \*

- ☒ Application for planning permission (including householder application but excluding application to work minerals).
- ☐ Application for planning permission in principle.
- ☐ Further application.
- ☐ Application for approval of matters specified in conditions.

What does your review relate to? \*

- ☒ Refusal Notice.
- ☐ Grant of permission with Conditions imposed.
- ☐ No decision reached within the prescribed period (two months after validation date or any agreed extension) – deemed refusal.

## Statement of reasons for seeking review

You must state in full, why you are seeking a review of the planning authority's decision (or failure to make a decision). Your statement must set out all matters you consider require to be taken into account in determining your review. If necessary this can be provided as a separate document in the 'Supporting Documents' section: \* (Max 500 characters)

Note: you are unlikely to have a further opportunity to add to your statement of appeal at a later date, so it is essential that you produce all of the information you want the decision-maker to take into account.

You should not however raise any new matter which was not before the planning authority at the time it decided your application (or at the time of expiry of the period of determination), unless you can demonstrate that the new matter could not have been raised before that time or that it not being raised before that time is a consequence of exceptional circumstances.

See Supporting Statement

Have you raised any matters which were not before the appointed officer at the time the determination on your application was made? \*

☐ Yes ☒ No

Please provide a list of all supporting documents, materials and evidence which you wish to submit with your notice of review and intend to rely on in support of your review. You can attach these documents electronically later in the process: \* (Max 500 characters)

Supporting Statement  
SEAL Environmental Ltd Environmental Report  
Wind Data  
Photographs

## Application Details

Please provide details of the application and decision.

What is the application reference number? \*

12/01396/FLL

What date was the application submitted to the planning authority? \*

31/07/12

What date was the decision issued by the planning authority? \*

01/02/13

## Review Procedure

The Local Review Body will decide on the procedure to be used to determine your review and may at any time during the review process require that further information or representations be made to enable them to determine the review. Further information may be required by one or a combination of procedures, such as: written submissions; the holding of one or more hearing sessions and/or inspecting the land which is the subject of the review case.

Can this review continue to a conclusion, in your opinion, based on a review of the relevant information provided by yourself and other parties only, without any further procedures? For example, written submission, hearing session, site inspection. \*

☒ Yes ☐ No

In the event that the Local Review Body appointed to consider your application decides to inspect the site, in your opinion:

Can the site be clearly seen from a road or public land? \*

☒ Yes ☐ No

Is it possible for the site to be accessed safely and without barriers to entry? \*

☒ Yes ☐ No

## Checklist - Application for Notice of Review

Please complete the following checklist to make sure you have provided all the necessary information in support of your appeal. Failure to submit all this information may result in your appeal being deemed invalid.

Have you provided the name and address of the applicant? \*

☒ Yes ☐ No

Have you provided the date and reference number of the application which is the subject of this review? \*

☒ Yes ☐ No

If you are the agent, acting on behalf of the applicant, have you provided details of your name and address and indicated whether any notice or correspondence required in connection with the review should be sent to you or the applicant? \*

☒ Yes ☐ No ☐ N/A

Have you provided a statement setting out your reasons for requiring a review and by what procedure (or combination of procedures) you wish the review to be conducted? \*

☒ Yes ☐ No

Note: You must state, in full, why you are seeking a review on your application. Your statement must set out all matters you consider require to be taken into account in determining your review. You may not have a further opportunity to add to your statement of review at a later date. It is therefore essential that you submit with your notice of review, all necessary information and evidence that you rely on and wish the Local Review Body to consider as part of your review.

Please attach a copy of all documents, material and evidence which you intend to rely on (e.g. plans and drawings) which are now the subject of this review \*

☒ Yes ☐ No

Note: Where the review relates to a further application e.g. renewal of planning permission or modification, variation or removal of a planning condition or where it relates to an application for approval of matters specified in conditions, it is advisable to provide the application reference number, approved plans and decision notice (if any) from the earlier consent.

## Declare - Notice of Review

I/We the applicant/agent certify that this is an application for review on the grounds stated.

Declaration Name: Brent Quinn

Declaration Date: 04/04/2013

Submission Date: 04/04/2013



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**Grounds of Appeal (Local Review Body)  
Statement:  
Against Refusal of Planning Permission for  
Retrospective Biomass Boiler at Tayside  
Hotel, Stanley, Perthshire**

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Prepared by:  
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Cockburn's Consultants  
March 2013

[www.cockburnsconsultants.com](http://www.cockburnsconsultants.com)

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## EXECUTIVE SUMMARY

It is important that the LRB take cognisance of the following key points on this case:

- This is a modest proposal relating to a small installation that is very important to the on-going viability of a significant contributor to the local economy, the Tayside Hotel in Stanley. The refusal of planning permission has resulted in economic difficulties for the appellant, threatening the on-going operation of the Hotel. The LRB now have the opportunity to right this initial wrong and to rightfully grant planning permission for the proposal.
- To put the modesty of the proposal in context, a typical domestic gas installation would be for a 20kw boiler, whilst this is a commercial biomass operation with a capacity of only 60kw, thus it is only three times the size of the average household installation in Stanley. The only reason the proposal even requires the benefit of planning permission is because the protrusion of the associated flue for the boiler exceeds the threshold allowed under Permitted Development regulations. The boiler itself does not actually require the benefit of planning permission.
- The perceived issues in respect of air quality, odour and the resultant impact on residential amenity have been proven to have no technical bearing.
- Overall, the proposal fully meets national, strategic and local planning policy and there are no material considerations of merit arising. The key issue has arisen through Environmental Health, who unfortunately have misinterpreted the information submitted and have made unreasonable requests of the appellant, completely out of scale with the size of the project at hand. Overall, Environmental Health have drawn conclusions that are incorrect. The area is not a 'Smoke Control Area'.
- It is suggested that the materiality and intention of some of the objections to the proposal are of questionable merit. The 'smoke' referred to is prevalent year round, outwith the proposed installation, as illustrated in photographs attached at Appendix 2.

## SECTION 1: INTRODUCTION

This Local Review Body (LRB) appeal statement relates to a retrospective application for planning permission (ref. 12/01396/FLL) for the installation of a biomass boiler to the rear of the premises at Tayside Hotel.

The application was submitted by Cockburns Consultants on behalf of the appellants (the owners of the Tayside Hotel) to Perth & Kinross Council on 31 July 2012, resulting in a refusal of planning permission by the Council. The Decision Notice and Application form pertaining to the original application have been submitted as part of this Appeal submission.

The Decision Notice was issued on 1<sup>st</sup> February 2013 and the refusal element cited only one reason only:

1. The installation and operational use of the flue as part of the biomass system will have a detrimental impact on nearby/neighbouring residential properties with regards to smoke/odour nuisance and is therefore contrary to Policy 71 Of the Perth Area Local Plan 1995 Incorporating Alteration No.1 Housing Land 2000 and Policy RD1 of the Proposed Local Development Plan - January 2012, which is a material consideration, where the retention and/or improvement of residential amenity is a key planning objective.

This Grounds of Appeal statement describes the site and surroundings, the proposed development and makes an assessment against planning policy, paying particular regard to amenity and public safety. It provides additional information beyond that required by statute and explains the background to the proposal, the policy context and outlines the reasons why it is considered to be acceptable so that this planning application should be ultimately be approved by Perth and Kinross Council.

Scaled drawings and accompanying photographs were submitted with the planning application to fully illustrate their style, context and appearance. These have also been included with this Appeal submission.

The report is divided into the following sections:

- Section 2 - describes the proposal, the site and surrounding area;
- Section 3 - outlines relevant planning policy;
- Section 4 - discusses the proposal against planning policy & guidance; and
- Section 5 - sets out the conclusion of the report.

This LRB appeal in its entirety has been submitted using the e-planning system, along with the following documents:

- Completed appeal forms prepared by Cockburn' Consultants (through the e-planning system);
- Appendices;
- Site photographs; and
- Architectural drawings, prepared by Slorach Wood Architects;

For the reasons stated further in this report it is considered that the proposed development is acceptable for this location. Suitable planning conditions, as suggested, can address any objections that may remain.

## SECTION 2: SITE DESCRIPTION & PROPOSAL

### PROPOSAL

The installation of the flue as part of the biomass system, the subject of this planning application, is made from galvanised steel and protrudes from the outbuilding to the rear of the hotel. This application is retrospective as the boiler has been installed. However, it was installed in good faith, as the appellants were unaware that the installation required the benefit of planning permission. Indeed, it is only the external flue that actually requires planning permission, on account of it being marginally outwith the allowances under Permitted Development rights in Scotland.

The installed boiler is a (Eco Angus) Origno 200, 60kW downdraught gasification biomass boiler which supplies hot water to the hotel and annexes. It has a standard design double skin insulated single stainless steel flue to the rear of the unit of 200mm diameter and exiting at 4.75m above ground level. The boiler house (and wood store) is approximately 2.2m high, thus the flue protrudes upwards from the roof space by some 2.55m. The chimney has been fitted with an exhaust fan reported to achieve 5 to 6 m/s vertical efflux velocity.

### SITE DESCRIPTION

The property to which this proposal relates is the Tayside Hotel, on 51-53 Mill Street, Stanley, Perthshire. It currently operates as a successful 3\* hotel which is very much an integral part of the village community. The main building is a three/two and a half storey property comprises a 12 bedroom hotel and built predominately of stone in a gothic Victorian style, built in 1898. The operators had previously used oil for their heating purposes, but have instead moved towards the biomass boiler as installed, in the interests of costs and sustainability. In terms of this latter point, the hotel has earned a Silver award from Visit Scotland in recognition of their environmental credentials.

Stanley is a designated village, as defined in the Perth Area Local Plan (1996). The overall character of the area is residential, with residential properties abounding the site on all sides.



The boiler house is located within an existing external outbuilding, within the confines of the car park, to the rear of the main building. The surface treatment for the car park is stone chips and the outbuilding that is approximately 1m in height, has a depth of around 1.2m and extends along the entire western boundary of the property. The flue that is the subject of this planning application is made from galvanised stainless steel and it protrudes approximately 2.5 metres from ground level, some 1.5 metres above the roof height of the outbuilding.

A picture of the site looking from within the car park is illustrated in Figure 1, below:

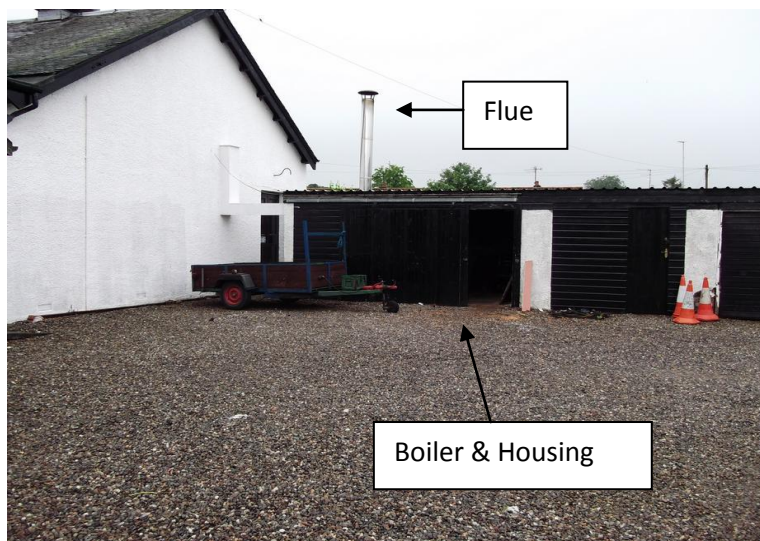


Figure 1: Picture of site, within existing car park.

A further picture showing the protruding flue from an adjacent private garden is illustrated in Figure 2, below:

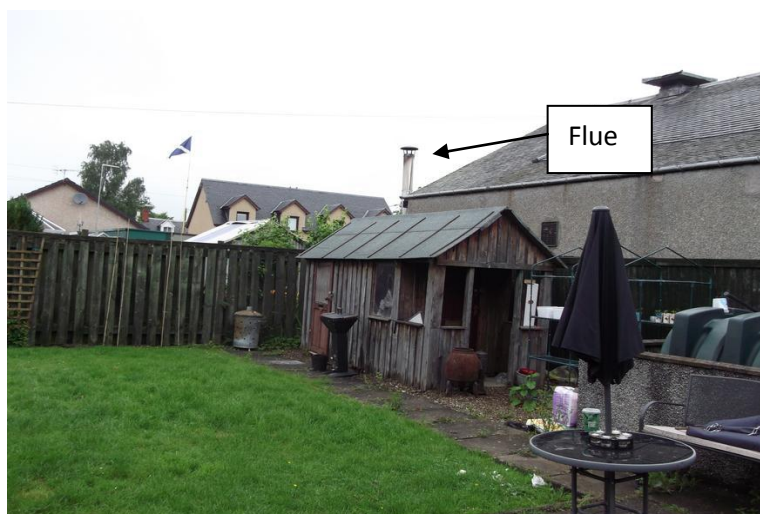


Figure 2: Picture of site, from garden of adjacent property

Both of these photographs illustrate the very small scale of the proposal and the modest nature of the development overall.

## SECTION 3: PLANNING POLICY

Sections 25 and 37(2) of the Town and Country Planning (Scotland) Act 1997 as amended by Planning Etc. (Scotland) Act 2006 require that planning decisions be made in accordance with the development plan unless material considerations indicate otherwise. The determining issues in this case are whether: - the proposal complies with development plan policy; or if there are any other material considerations which justify a departure from policy.

### Policy

In this regard, whilst there are general policy provisions throughout the Strategic Development Plan - TAYplan 2012, the most relevant policy of the Perth Area Local Plan (PALP) in this instance is Policy 41.

The overall policy context is outlined below:

### NATIONAL GUIDANCE

#### Scottish Planning Policy 2010

This SPP is a statement of Scottish Government policy on land use planning and contains:

- The Scottish Government's view of the purpose of planning,
- The core principles for the operation of the system and the objectives for key parts of the system,
- Statutory guidance on sustainable development and planning under Section 3E of the Planning etc. (Scotland) Act 2006, and
- Concise subject planning policies, including the implications for development planning and development management

## DEVELOPMENT PLAN

### Perth and Kinross Structure Plan 2003

There are no relevant strategic planning policies

### Perth Area Local Plan 1995

In para. 1.3, the Written Statement identifies the purpose of the plan and states various criteria on how it should function. In terms of this planning application, the following criterion is particularly appropriate:

- To apply principles of sustainable development and anticipate a future with increasing conservation of natural resources.

*Policy 41* Perth Area general residential Proposals Map B identifies areas of residential and compatible uses where existing residential amenity will be retained and where possible improved. Where sites in other uses become available for development, housing will generally be the most obvious alternative use. Some scope may exist for infill development, but only where this will not significantly affect the density, character or amenity of the area concerned. Small areas of private and public open space will be retained where they are of recreational or amenity value to their surroundings. Change of use to hotel, boarding and guest house use will be permitted normally only on the main radial routes in the city

### Proposed Perth & Kinross Local Development Plan - Proposed January 2012

Whilst not adopted as yet, this document is viewed as a material consideration

#### *Policy RD1: Residential Areas*

The Plan identifies areas of residential and compatible uses where existing residential amenity will be protected and, where possible, improved. Small areas of private and public open space will be retained where they are of recreational or amenity value. Changes away from ancillary uses such as employment land, local shops and community facilities will be resisted unless there is demonstrable market evidence that the existing use is no longer viable.

Generally encouragement will be given to proposals which fall into one or more of the following categories of development and which are compatible with the amenity and character of the area:

- (a) Infill residential development of a similar density to its environs.
- (b) Improvements to shopping facilities where it can be shown that they would serve local needs of the area.
- (c) Proposals which will improve the character and environment of the area or village.
- (d) Business, home working, tourism or leisure activities.
- (e) Proposals for improvements to community and educational facilities.

### **Determination**

The starting point for the consideration of this appeal is Section 25 of the Town & Country Planning (Scotland) Act 1997. This requires that planning decisions be made in accordance with the Development Plan unless material considerations indicate otherwise.

The interpretation of this provision was clarified in a House of Lords' decision in 1998. The House of Lords' judgement set out a specific step by step approach to determining an application:

- ...identify any provisions of the development plan which are relevant to the decision;
- interpret them carefully, looking at the aims and objectives of the plan as well as detailed wording of policies;
- consider whether or not the proposal accords with the development plan;
- identify and consider relevant material considerations, for and against the proposal; and
- assess whether these considerations warrant a departure from the development plan.

The weight to be attached to any relevant material consideration is for the judgement of the decision-maker. Having regard to this, it is considered that the Council did not fully consider the aims and objectives of the Local Plan or the other Non-Statutory documents and arrived at a decision that did not take into account all relevant material considerations.

The key issue to be considered as part of this appeal is whether the proposed installation and its outputs would be contrary to the interests of residential amenity. The character of the area is a relevant consideration in this regard, as is the fact that Stanley is not a designated 'Smoke Control Area', there being no such designation within the Perth & Kinross Council area. It should also be noted that the site is not located within a conservation area, in close vicinity to a listed building or structure, and nor are there any sensitive receptors within the immediate vicinity.

## SECTION 4: DISCUSSION

### Proposed Development

Biomass is an energy source comprising of biological material derived from living or recently living organisms such as virgin wood or other wood feedstock. The plant will use this fuel source to generate steam to heat the premises. The plant has the capacity to generate up to 60KW of heat.

### Economic Development & Early Points of Clarification

From an economic policy perspective, the project contributes to the Government's Economic Strategy, by encouraging a supportive business environment and sustainability objectives, with priorities centred around realising business priorities based on sustainable economic development.

The scheme has received support from the Council's Renewable Energy Officer in terms of the need for such facilities in the Perth & Kinross area and the associated renewable energy environmental benefits it would generate.

For the avoidance of any doubt, the appellant has confirmed that all feedstocks will be virgin wood and that no waste products would be used within the facility; indeed the technology type is incapable of burning such waste materials.

### Air Quality, Odour & Impact on Residential Development

Policy 71 of the Perth Area Local Plan 1995 Incorporating Alteration No.1 Housing Land 2000 and Policy RD1 of the Proposed Local Development Plan - January 2012 both seek to protect existing residential amenities. It is on these policy grounds that the proposal was ultimately refused.

There are environmental controls on the operations at the system which mitigate any environmental impacts in terms of noise, air quality and odour. However, there through Environmental Health, there appears to be some extant issues over this, as well as some misunderstanding.

Any development proposals that could adversely affect air quality to a level that could harm human health and wellbeing or the integrity of the natural environment should be accompanied by provisions that the Council is satisfied will minimise such impacts to an acceptable degree.

The appellant, through a suitably qualified body (SEAL Environmental) has assessed the potential impact on air quality and odour from the proposed development. The assessment considers the effects of emissions from the development on the local community in terms of air quality standards. Mitigation measures have been considered but on account of the scale of the proposal are inappropriate and unnecessary.

The following should be read in conjunction with the assessment undertaken by SEAL Environmental in December 2012 (Appendix 1):

It is important to fully understand that we are discussing a 60kW boiler that under normal operating conditions especially in the summer will be operating at below this level. In the letter dated 14/12/12 SEAL Environmental Ltd quote the Carbon Trust report which states that the required energy (heat) demand for the hotel is 213,000kWh per year, hence the boiler will operate at an average rate (assuming some inefficiency losses) of around 30kW, that just over half the size that requires assessment under the Local Air Quality Management regime (50kW).

The unit is hence the size of a larger domestic boiler, such as are installed routinely, both outwith and within Smoke Control Areas, and is not an industrial process requiring a Pollution Prevention and Control permit or other high level forms of regulation. Even at its maximum wood burning capacity (15 kg/hour) it won't require Chimney Height Approval under the Clean Air Act 1993 (s. 14) which is only required for solid fuel burning at a rate greater than 45.4 kg/hour.

With respect to the comments supplied in Environmental Health's Memorandum dated 8/01/13, we are pleased that the general conclusion with respect to the report is that "Based on the evidence presented on the grounds of local air quality this Service agrees that objectives for PM10 and NO2 will not be breached and therefore have no objections to the application on the grounds of local air quality".

This implies that the method of achieving dispersion via the 4.75m flew on the boiler house is adequate for the dispersion of residual pollutants, and the modelling shows this, it also implies that this has been accepted by the Council. The conclusions state



further that “no part of this report addresses the nuisance from smoke odour”, and the next paragraph states “in specific the flue height and location, still cause nuisance conditions”.

The report however does provide information on both the nuisance odour context and smoke. The report describes the background odour conditions as those pertaining to a village where open hearth burning still takes place with the consequent emission of large quantities of smoke, odour and SO<sub>2</sub> (due to the bituminous coal used – ample evidence on this had already been presented to the Environmental Health Department who have allegedly repeatedly refused to take it into consideration).

The report highlights that odour was present outside the Hotel on 5/12/12 (and was present before the start-up of the boiler), namely clearly that of coal burning, and photographs are presented as evidence in the report of local emissions. During 5 minutes of start-up of the boiler, a very light plume of condensed water vapour was observed (incorrectly referred to as steam). This cleared to leave a completely invisible plume (evidence is presented in the report) showing no smoke from the boiler.

The letter dated 14/12/12 also contains clarification on the mass emissions in the local environment; based on data provided to me on the number of smoking chimneys witnessed in the local area immediately adjacent to the hotel. This is unlikely to represent the total number of houses in the area burning coal though such data should be available from the Environmental Health Department in support of their Local Air Quality Management updating and screening or detailed assessment reports. In the letter the mass emission of particulates (smoke) from coal burning is calculated to be 1466kg particulates per year. The mass of particulates (smoke) from the Tayside Hotel boiler is less than 34kg. This figure must be accepted by the Environmental Health Department as they have agreed to the conclusion of the report on PM<sub>10</sub>s. Calculations could also be undertaken on the emissions of other compounds from open hearth coal burning.

The issue with open hearths is that combustion is very poor due to the cool air surrounding the fire leaving products of incomplete combustion to pass up the chimney. This doesn't happen in a controlled environment such as a boiler furnace. The comment in the Memorandum regarding the reduction of PM<sub>10</sub> as it is a non-threshold pollutant should also apply to local coal burning.

In addition, having accepted the particulate calculations, the Environmental Health Department must also accept that there is no visible smoke – visible smoke is said to occur at concentration levels greater than around 150mg/m<sup>3</sup> in the plume (as stated in a report<sup>1</sup> prepared by AEA technology, now Ricardo-AEA, on behalf of the Forestry Commission Scotland), the table is reproduced below.

**Table 1-1 Summary of Clean Air Act exemption particulate emission limits**

Parameter	Limit	Comment
Particulate emission rate	5+ ((Output, kW) + 3) g/hour	Extrapolation of BS PD 6434:1969
Particulate concentration	<150 mg/m <sup>3</sup> dry gas, stack O <sub>2</sub> and STP (0°C, 101.3 kPa)	Concentration value used as indication of 'smokeless' operation.

The concentration measured by the Czech Engineering Test Institute (CETI) (Appendix 4) show that the particulate concentration (described as "dust") in the boiler emission is around 48mg/m<sup>3</sup>. In other words smokeless.

The particulate emission factor provided by CETI of 18g/GJ would also comply with the strictest standard proposed as a CEN standard for manually operated appliances as shown in the following table:

**Table 1-2 : Summary of EN303-5 Emission classes**

Stoking	EN 303 Class				
	Current			Proposed	
	1	2	3	4	5
	Concentrations, mg/m <sup>3</sup> at 10% O <sub>2</sub> , dry and STP (0°C, 101.3 kPa)				
Manual	200	180	150	75	60
Automatic	200	180	150	60	40
	Derived emission factors, g/GJ (net thermal input)				
Manual	103	92	77	38	31
Automatic	103	92	77	31	21

Note: Conversions assume wood combustion and are based on US Environmental Protection Agency stoichiometric flue gas volumes and Digest of UK Energy Statistics calorific values. Proposed classes taken from August 2010 prEN 303-5.

With respect to "smoke odour" or just odour, the prime cause of odour in a combustion process is incomplete combustion and high levels of organic compounds due to this. In the gasification boiler, as was previously reported in

<sup>1</sup> <http://www.usewoodfuel.co.uk/media/234619/assessment-of-flue-gas-particulate-abatement-in-wood-burning-boilers-phase-1.pdf>

TAH.001, temperatures of 1200oC are achieved, this is higher than is required for secondary chambers of waste incinerators (850 or 1000oC respectively), ensuring excellent combustion of all the gas evolved from the gasification process.

With respect to the alleged nuisance, it is highly unlikely that the boiler would create sufficient odour that can be detected over and above the background of coal smoke. Any modelling (which the Memorandum suggests should have been attempted) would also need to include the background odour of coal smoke and is hence unlikely to demonstrate a nuisance as it will be completely masked.

The "mitigation" proposed, as required by the notice, would therefore twofold: as already described in TAH.001 by installing the Exodraft RSV fan (also described in TAH.001) which increases the vertical discharge velocity of the exhaust gases to that used in the modelling (between 5 and 6m/s) thereby improving dispersion and reducing the potential for local downdraught effects at ground level; and by ensuring that the boiler is maintained correctly, the appropriate moisture content fuel is use, and the boiler is stoked correctly to achieve the best gasification and combustion conditions.

5 years of weather data is provided in Appendix 3 from IPERTHHAN2 station which is situated at Huntingtowerfield which is 5.346 miles as the crow flies away from the hotel. We believe that the Council's environmental health officers and experts have used the station at Balmyre, Kilspindie which is 8.562 miles away.

There is also a third station that could have been used Saucher, Kinrossie which lies 5.254 miles east of the hotel All data has been collected from [www.wunderground.com](http://www.wunderground.com)

Environmental Health have stated that a North through to East wind, in particular one of 60 degrees, would cause nuisance to the complainants. As can be seen in Appendix 3 data for the past 5 years shows there has been very few winds in the 0 – 90 degree area.

The expert (Dr Hamilton) that the Council's Environmental Health dept. has employed has been very selective with the data he has chosen to list as it would appear from this table the wind seems to only really come from the North East. This does mean however that he has failed to make use of and show data relevant to over half of the complaint reports submitted (perhaps because they do not fit in with his report findings?). For example the report lists only one entry for September from

the Zaczek property, however for that month they actually reported 25 days out of 30 and on occasions made more than one entry per day.

Full test reports of the boiler from EcoAngus (the boiler manufacturer) and details of UK smoke control limits confirm that the boiler is fully compliant. Indeed, Environmental Health's expert, a Dr Hamilton states that *'the boiler has never been subjected to any in-situ emissions testing. The .....measurements taken under laboratory conditions....'* . It is important to note that AEA, the company that Dr Hamilton works for, have approved the boiler, and numerous others, to be 'suitable for exemption under the Clean Air Act 1993'. For any clarification, the boiler has a full Approval Certificate, as shown in Appendix 5. To reach this conclusion AEA used independent laboratory reports, not data gathered from *"boilers in a working situation"*. The question here surely should be if the data used by AEA for the Clean Air Act exemption is acceptable why do they, and PKC, refuse to accept the same data from us? The answer is there is no justification whatsoever for this stance.

Overall, given the scale of the boiler and the information we have provided in the foregoing, it is considered that the proposal does not have any undue impact on residential amenity. The perception of smoke and odour has been somewhat misrepresented. The boiler does result in darkened 'air' upon start up, but legislation fully allows for this and when it is operational, there is no impact whatsoever.

### Noise

Noise from the installation, inclusive of any tonal penalty, should not exceed the existing background level (LAF90) by more than 5dBA at any noise sensitive premises. This can be controlled by a suitably worded planning condition.

### Traffic

Any increase in road traffic movement is diminimus and so the impact on air quality from vehicle emissions is not considered to be significant.

### Representations

In total, there were five representations made in respect of the application. These all came from private individuals. All of the comments received referred to issues in terms of smokes and odour, despite the proposal falling within an area that is not

subject to any Smoke Control. These issues have been addressed in full in the foregoing discussion and in Appendix 1.

However, anecdotal information provided from the appellant and the nature of the business and the resultant divisions of individual perception of the hotel operation, suggest that the representations made may have been made for reasons that address alternative issues and are not wholly material in the consideration of this proposal. This is not a comment that is made flippantly as wind direction on days of complaint (as referred to above, and detailed in the wind data in Appendix 3) has been such that if there HAD been any significant smoke or odour arising from the development, it would simply not have impacted upon the objection premises at hand. Indeed, the complainant premises (all within the immediate locale) are currently affected by smoke and odour from their own heating systems and chimney emissions, as illustrated in Appendix 2. Photographs taken within the last month (when the proposed installation as part of this LRB appeal has been inoperative) demonstrate the high intensity of smoke activity within the immediate locale, where all of the objectors reside.

From the photographs taken by my client (Appendix 2), it is worth noting the amount of smoke that can be seen coming from the properties of the objectors and lack of dispersion.

## SECTION 5: CONCLUSION

The appellant seeks retrospective planning permission for a 60kw biomass boiler and associated flue. It is important to take cognisance that this scale of boiler is not uncommon in a large domestic property. Indeed, the average house would incorporate a 20kw system, thus this proposal is only three times the size of what one might expect in a 'standardised' residential property.

Although the installation only requires planning permission on account of a technicality pertaining to the height of the flue, the key consideration in this appeal is whether the proposed very small biomass boiler and flue, as installed, would have a detrimental impact on the residential amenity of the local area.

Unfortunately, it is considered that Environmental Health have been somewhat unreasonable and 'heavy handed' throughout their consideration of this proposal. The information we have provided both as part of this LRB submission and in the course of the application amply demonstrates that the boiler operates within the requirements of all appropriate regulations and legislation. This information further demonstrates that the issues raised by the objector's could not be considered to be material.

It is these issues (of odour and air quality) and the resultant perceived impact on residential amenity that are the substance of the single reason for refusal. Because Environmental Health have spuriously stuck to this position, it is considered that the planning officer was left in the unenviable position of being forced to refuse the application. Because these issues have been proven to have no substance, the refusal itself and the single reason given thereof has no merit whatsoever.

It is therefore respectfully requested that this LRB appeal is upheld and that planning permission be granted.


## **Tayside Hotel biomass air quality assessment**

Client: Tayside Hotel  
Report no.: TAH.001  
Date: 13/12/2012  
Confidential

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<b>Report Title</b>	Tayside Hotel biomass air quality assessment
<b>Client</b>	Tayside Hotel
<b>Report No:</b>	TAH.001
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## APPENDICES

Appendix 1: Stoichiometric Calculations

Appendix 2: Orlingo Data Sheet Extracts

Appendix 3: Photographic Plates

## **1 INTRODUCTION**

SEAL Environment Limited has been requested by the Tayside Hotel, Stanley to undertake an assessment of emissions from an existing but non-operating biomass-fired boiler in support of a retrospective planning application.

The scope of work for the assessment as specified by Perth & Kinross Council is:

“It is recommended the air quality assessment should include site description, local build environment, local topography, local meteorology, boiler; details, performance and management, fuel; all fuel types used storage and stocking times, operational times and dispersion modelling (AERMOD or ADMS), local building down wash and mitigation measures to abate nuisance conditions.”

### **1.1 Response to the brief**

Local Air Quality Management Technical Guidance TG(09) (hereinafter TG09) provides the guidance on assessment for local authorities on preparing Updating & Screening Assessments, Progress Reports and Detailed Assessments. This report uses methods outlined in TG09 to assess the potential impact of the biomass boilers.

An assessment will also be provided which describes the local dispersion environment, as well as observations of the emissions at start up, and detailed ADMS modelling appropriate to the scale of the emission. The gasification boiler performance will be explained and described based on previously measured emission values as reported by the Czech Engineering Test Institute and AEA Technology (extracts contained in Appendix 2).

## **2 SITE DESCRIPTION**

The development comprises a small gasification boiler rated at 60kW housed in a row of garages currently used as boiler house and fuel stores.

The boiler house is situated to the rear of the Tayside Hotel in Stanley, Perthshire, next to an area used for car parking for the hotel, and adjacent to a small number of houses. The approximate grid reference of the flue is OS GR 310870, 733284. The location is shown in Figure 1 attached.

The hotel stands on the corner of Mill Street and East Brougham Street fairly central to the village with mostly single storey houses (many with loft conversions) immediately around the hotel. The overall area is relatively flat in terms of airflow (no steep gradients or hills

diverting or channelling airflow, and no other large structures or trees forming an obstruction to airflow other than the main hotel building).

There are no sources of significant atmospheric emissions in the vicinity of the proposed development. The only emission source identified is road traffic on the B9099 Perth Road, which is known to be used by commercial vehicles as a short cut route avoiding congestion to the North of Perth. The road is however sufficiently distant from the hotel to affect immediate local concentrations (of NO<sub>2</sub> and PM<sub>10</sub>). The area is however not on the gas main and is still subject to coal and wood burning in open fires. Whilst on the site visit 3 nearby chimneys were seen to be emitting visible smoke (2 are shown in Appendix 3 Photographic Plates). The distinct smell from bituminous coal burning was evident in the hotel car park and attributed to a house directly upwind of the hotel on the day of the site visit. This is understood to be prevalent in colder months.

Current monitoring of air quality in Perthshire includes 2 automatic sites in Perth and 1 in Crieff as well as a number of diffusion tube locations in Perth, Crieff, Aberfeldy and Glencarse, it does not include any locations in Stanley that could be used in this assessment.

### 3 THE BOILER

The installed boiler is a (Eco Angus) Origno 200, 60kW downdraught gasification biomass boiler which supplies hot water to the hotel and annexes. It has a standard design double skin insulated single stainless steel flue to the rear of the unit of 200mm diameter and exiting at 4.75m above ground level. The boiler house (and wood store) is approximately 2.2m high. The chimney has been fitted with an exhaust fan reported to achieve 5 to 6 m/s vertical efflux velocity.

Gasification in this context means the controlled thermal decomposition and volatilisation of solid wood fuel to produce combustion gases of principally hydrogen, carbon monoxide, and other hydrocarbons (which is the normal wood burning release of volatiles, around 70-80% of wood is volatile). The gases evolved are then subsequently completely combusted in the temperature controlled combustion zone, which is a ceramic nozzle in the bottom chamber of the boiler which operates at around 1200°C ensuring exceptional combustion of all gases.

Combustion of the remaining carbon-rich char occurs on the grate, contributing to the thermal output and stable primary chamber temperature preheating the logs in the main chamber.

Gasification is in fact how most wood combustion takes place, with initial drying of the wood, volatilisation and subsequent combustion of gases, and final combustion of the remaining char. The balance between how much gasification occurs and how much char remains for combustion is provided by the individual furnace design.

The boiler is of a type that must be brought up to temperature and operated continuously, it is not suited to turning on and off or operating at lower than design rates. The optimal boiler water temperature is 85 - 90 °C. At lower temperatures the gasification process is less efficient and the boiler cannot reach nominal power, and fuel usage increases. Wood drying in the loading chamber is a crucial stage in the gasification process – at lower temperatures the boiler cannot reach temperature and the gasification process is disturbed. The main source of heat in the boiler is the gas flame created during the gas combustion process, if the main conditions aren't met for gasification then flame volume and quality suffer.

During the site visit this was evident in that the operator had been requested to start up from cold and not to stack the boiler with logs which would have required a 6-8 hour burn. This in turn meant that ideal temperatures were reached most likely under log combustion conditions rather than gasification and wood-gas burning conditions. Emissions of a plume, initially of steam with short periods of white fume were observed, which is to be expected given that the boiler was operating under sub-optimal gasification conditions due to the planning restriction. However the plume was very light, cleared quickly (see Photographic Plates, Appendix 3), demonstrated sufficient rise over the annex building for dispersion and wasn't detectable as an odour.

### 3.1 Wood composition and stoichiometry

Tayside Hotel uses softwood obtained from nearby sawmills. The composition will be similar to standard compositions obtainable from resources such as the Energy Research Centre of the Netherlands ECN Phyllis database<sup>1</sup>, a comprehensive database of analyses from a wide variety of sources of biomass.

An example is shown below, for mixed softwoods with bark.

---

<sup>1</sup> <http://www.ecn.nl/phyllis/>

The screenshot shows the ECN Phyllis database interface. On the left is a tree view of biomass categories. The main panel displays details for 'WOOD, mixed conifer'. The 'Classification' section shows the ECN Phyllis classification path: untreated wood > fir/pine/spruce. The 'Ash type' is 525°C. The 'Submission date' is 2011-01-07. The 'Remarks' are 'air dried chips with about 20% bark'. The 'Literature' section cites P. Thy, B.M. Jenkins, R.B. Williams, C.E. Leshar, R.R. Bakker: Bed agglomeration in fluidized combustor fueled by wood and rice straw blend.

The 'Values' section contains a table with the following data:

Property	Unit	Value	Std dev	Det lim	Lab	Date	Method	Remarks
<b>Fuel Properties</b>								
<b>Proximate Analysis</b>								
Moisture content	wt%	20						Restore 'air'
Ash content	wt%	0.96	1.20					
<b>Ultimate Analysis</b>								
Carbon	wt%	42.40	53.00	53.64				Measured
Hydrogen	wt%	4.56	5.70	5.77				Measured
Nitrogen	wt%	0.08	0.10	0.10				Measured
Sulphur	wt%	0.00	0.00	0.00				Measured
Oxygen	wt%	32.00	40.00	40.49				Calculated
Total (with halides)	wt%	100.00	100.00	100.00				Calculated
<b>Calorific Values</b>								
HHV <sub>Wet</sub>	MJ/kg	16.62	20.78	21.03				Calculated
<b>Chemical Analyses</b>								
<b>Halides</b>								
Chlorine (Cl)	mg/kg	0.0	0.0	0.0				Measured
<b>Ash Properties</b>								
<b>Ash composition</b>								
P <sub>2</sub> O <sub>5</sub>	wt% (ash)			4.69				
SiO <sub>2</sub>	wt% (ash)			14.01				

Energy values are obtained from a European Biomass Trade Centre report<sup>2</sup>. This states in Table 2.8.1 typical net calorific value (NCV) of softwood logs of 20% moisture is 14.31GJ/t (or MJ/kg). Recalculating the stoichiometric and excess air using the ECN composition and the NCV above provides fuel consumption rates and exhaust gas volume calculations against which the Czech Engineering Test Institute report can be compared. The stoichiometry spreadsheet is attached at Appendix 1. For comparison the Orlogno wood composition test data is also provided at Appendix 2. The calculated fuel consumption of 15kg per hour agrees closely with the Czech value of 15.17kg/h. The exhaust gas volume at 140°C and 40% excess air supply is also similar (0.41m<sup>3</sup>/s compared to 0.40m<sup>3</sup>/s). These variations will depend on the precise ratios of carbon, hydrogen and oxygen in the wood, as well as the local atmospheric conditions such as the humidity in the combustion air supplied to the boiler.

### 3.2 Emissions data

Information on expected emissions from the biomass boiler was provided by Tayside Hotel and is contained in two separate reports. Extracts from reports are attached as Appendix 2. The design emission parameters that are used in the assessment are provided in Table 1. Note an internal diameter of 0.1m was used to obtain the velocity of 5-6m/s which will be achieved by the Exodraft RSV chimney top fan.

<sup>2</sup> [http://nuke.biomassstradecentres.eu/Portals/0/D2.1.1%20-%20WOOD%20FUELS%20HANDBOOK\\_BTC\\_EN.pdf](http://nuke.biomassstradecentres.eu/Portals/0/D2.1.1%20-%20WOOD%20FUELS%20HANDBOOK_BTC_EN.pdf)



**Table 1: Emission parameters**

Parameter	Value
Stack height (m)	4.75
Stack diameter, internal (m)	0.1
Gas exit temperature (°C)	140
Stack position	310870.13, 733284.32
Building height (m)	2.2
Thermal output MW	0.06
Emissions factors g/MJ	
NO <sub>x</sub>	91
TPM	18 - 33

To calculate the emission rate of pollutant in grams per second the thermal output is multiplied by the emission factor from the supplied datasheets (Appendix 2).

AEA state an emission factor of 33g/GJ, whereas the Appendix 2 report has measured emissions and determined factors of 18g/GJ total particulate (dust) and 91g/GJ for total NO<sub>x</sub>. TG(09) provides the formula for calculating emission rates (in box D1a, biomass combustion).

Emission rates are provided in Table 2.

**Table 2: Pollutant emission rates**

	Emission factor (g/GJ)	Emission rates (g/s)
NO <sub>x</sub>	91	0.0055
TPM	18	0.0011
	33	0.0020

These emission rates are exceptionally low and in the normal range for such a small boiler. By way of comparison, a 50kW boiler subject to a similar assessment by AEA Technology (Peaslake Biomass Boiler Air Quality Assessment<sup>3</sup>) had a reported emission rate for PM<sub>10</sub> of 0.00102g/s and for NO<sub>x</sub> of 0.00686.

For the purposes of the assessment a number of assumptions have been made with the emissions data. In a standard combustion process not all NO<sub>x</sub> will form NO<sub>2</sub>, in reality less than 5% of NO<sub>x</sub> emissions will emit directly as NO<sub>2</sub>, and the remainder will convert over time based on local concentrations of NO and O<sub>3</sub>.

<sup>3</sup> [http://laqm.defra.gov.uk/documents/Guildford\\_Biomass\\_DA\\_2010.pdf](http://laqm.defra.gov.uk/documents/Guildford_Biomass_DA_2010.pdf)

Similarly, particles emissions data was provided as dust (or total particulate matter, TPM), and as a 'worst-case' estimate this has all been assumed to be PM<sub>10</sub>.

## 4 AIR QUALITY STANDARDS

The impact of emissions from the site should be assessed against the various air quality standards and objectives set out in legislation and government guidance. The main sources of standards and objectives are the *Air Quality (Scotland) Regulations 2000*, and the *Air Quality (Scotland) Amendment Regulations 2002*. These are based on the recommendations in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland and the objectives for relevant pollutants are outlined in Table 3.

**Table 3: Air Quality Standards**

Pollutant	Limit concentration	Maximum No exceedences	Percentile	Measured as	To be achieved by
PM <sub>10</sub>	18µg/m <sup>3</sup>			1-hour mean	31-Dec-10
	50µg/m <sup>3</sup>	7	98.08 <sup>th</sup>	24-hour mean	31-Dec-10
NO <sub>2</sub>	200µg/m <sup>3</sup>	18 times per year	99.79 <sup>th</sup>	1-hour mean	31-Dec-05
	40µg/m <sup>3</sup>			annual mean	31-Dec-05

The percentile value provides the maximum number of averaging periods which are allowed to exceed the concentration limit. For instance the short term particulate limit is 50µg/m<sup>3</sup> which is allowed to be exceeded for up to 7 24-hour periods in a year, equivalent to the 98.08<sup>th</sup> percentile of all 24-hour periods. The model will calculate the percentile value which is exceeded for 7 24-hour periods. If this value is less than 50 µg/m<sup>3</sup> then the standard has been met.

### 4.1 Background pollutant concentrations

Background emission sources are considered in order to account for the cumulative effect of multiple pollutant sources on overall concentrations in the atmosphere. The Scottish Government operates a website in support of Local Air Quality Management practitioners<sup>4</sup>, which provides background concentrations ("maps") for the pollutants specified in the National Air Quality Strategy<sup>5</sup> (NAQS) on a 1km by 1km grid square basis. Stanley is located in the grid square with centre OS GR 310500 733500.

<sup>4</sup> <http://www.scottishairquality.co.uk/maps.php>

<sup>5</sup> Defra et al, (2000) Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Department for Environment, Food and Rural Affairs in partnership with the Scottish Executive, Welsh Assembly Government and Department of the Environment Northern Ireland, July 2007.

Background (predicted) concentrations for the study area were obtained for 2013<sup>6</sup> and are presented in Table 4. The grid square containing Stanley is highlighted.

By way of comparison background values are presented for surrounding grid squares, this shows the small increase expected due to the village. Note these are all considerably below the Air Quality Standards indicating very good air quality, and demonstrate the considerable head room available for additional emissions.

**Table 4: Pollutant Background Concentrations, 2013**

Background Concentrations				
Annual Mean Concentration (µg/m <sup>3</sup> )				
Easting	Northing	NO <sub>2</sub>	NO <sub>x</sub> as NO <sub>2</sub>	PM <sub>10</sub>
309500	734500	3.63	5.28	10.61
310500	734500	3.78	5.51	11.09
311500	734500	3.70	5.38	11.19
309500	733500	3.75	5.46	11.44
310500	733500	3.98	5.81	11.40
311500	733500	4.03	5.88	11.05
309500	732500	4.34	6.35	11.61
310500	732500	4.37	6.40	10.55
311500	732500	4.04	5.90	11.45
Average		3.96	5.78	11.15

## 5 LAQM TG(09)

LAQM TG(09) provides the guidance on assessment for local authorities on preparing Updating & Screening Assessments, Progress Reports and Detailed Assessments. It includes tools for assessment which can be used to assess new developments.

Updating and Screening Assessment requires identification of those matters that have changed since the last Review and Assessment, which might lead to a risk of an air quality objective being exceeded. The process follows a checklist to identify significant changes that require further consideration. Where such changes are identified, then simple screening tools are applied to decide whether there is sufficient risk of an exceedance of an objective to justify a 'Detailed Assessment'. The U&SA is undertaken on a 3 yearly cycle by the Local Authority. The most recent was due in April 2012, however has not yet been posted on the Perth & Kinross airquality website<sup>7</sup>.

<sup>6</sup> [http://www.scottishairquality.co.uk/maps.php?n\\_action=data](http://www.scottishairquality.co.uk/maps.php?n_action=data)

<sup>7</sup> <http://www.pkcairquality.org.uk/>

The TG09 checklists include 'Biomass combustion (including domestic solid-fuel burning for PM<sub>10</sub>)- Relevant Pollutants: NO<sub>2</sub>, PM<sub>10</sub>'. TG09 follows a source by source approach instead of the previous pollutant approach.

The biomass unit falls under Chapter 5 section D "Commercial and Domestic Sources".

This section covers emissions from the commercial and domestic sector, including the service sector (for example, commercial offices, education, government, health, hotel and catering, retail, sport and leisure, warehousing etc).

The guidance states at paragraph 5.70: "the significance of domestic biomass combustion is currently thought to be relatively small. However, it may become more significant in the future. There are concerns, particularly in London and urban areas in Scotland, that a significant increase in biomass combustion generally, and in particular the use of wood fuel, could detrimentally affect local air quality."

## 5.1 Local Buildings and stack position

Perth & Kinross Council has expressed a concern regarding the proximity of the flue to the buildings as well as the flue height. Strict assessment according to TG(09), which is in essence a 'broadbrush' screening method, would suggest that further assessment is required. In this instance visual observation, photographic evidence and modelling are used. The buildings have also been re-measured, as it was stated by the Council that the nearest building was 7m high and the stack 4m high. The nearest building at the apex is 5.9m and the stack is 4.75m. However the stack is offset away from the building which shows that under most wind directions airflow over the stack is sufficient to remove and disperse any residual combustion products (see Appendix 3, Photographic Plates). The exception might be winds from the North North East which could suffer from downwash due to the main hotel building and due to the annex. However these are infrequent and are modelled in ADMS.

## 5.2 TG(09) Assessment

The assessment follows the method outlined in Section D of TG09, from paragraphs 5.68 onwards, using the D1a checklist, relevant to plant between 50kW and 20MW thermal input (the development is for one 60kW unit, therefore just coming in to the low end of the criteria).

The method requires the calculation of background adjusted emission rates and comparison to nomograms. The first assesses the likelihood of the appliance leading to an exceedence of the 24-hour mean objective for PM<sub>10</sub>.

The “background-adjusted” emission rate is calculated using:

$$E_A = \frac{E}{(32 - G)}$$

where: E is the emission rate in g/s for the plant operating at capacity; and G is the annual average background concentration in  $\mu\text{g}/\text{m}^3$ . The  $32 \mu\text{g}/\text{m}^3$  represents the annual average concentration at which, given a typical distribution of concentrations, the 90<sup>th</sup> percentile of 24-hour means will exceed the objective.

To use the nomogram, identify the line that corresponds to the diameter of the stack under consideration and locate the point on this line whose ordinate corresponds to the effective stack height. Read off the corresponding threshold emission rate on the horizontal axis and compare this with the “background-adjusted” emission rate. If the “background-adjusted” emission rate is greater than or equal to the threshold emission rate, a Detailed Assessment is required.

The same process is applied for the  $\text{NO}_2$  annual mean and  $\text{NO}_2$  1-hour mean standards using the following formulae for  $E_A$  respectively:

$$E_A = \frac{E}{(40 - G)} \quad E_A = \frac{40E}{(200 - 2G)}$$

The adjusted emission rates and determined threshold rates are presented in Table 5 for comparison.

**Table 5: Background Adjusted Emission Rates and Threshold Emission Rates**

Background Adjusted Emission Rates and Threshold Emission Rates			
U=4.75m	PM <sub>10</sub>	(Ann Mean) NO <sub>2</sub>	(Hourly Mean) NO <sub>2</sub>
Emission Factor mg/MJ	18	91	91
Thermal Input MW	0.06	0.06	0.06
Emission Rate g/s	0.0011	0.0055	0.0055
Background Conc $\mu\text{g}/\text{m}^3$	11.4	3.98	7.96
Background Adjusted Emission Rates g/s	0.0000534	0.000153	0.00115
Threshold emission rate for 4.75m stack height g/s	~0.0015	~0.004	0.008

The threshold emission rates are provided in nomograms 5.19, 5.20 and 5.21 in TG09.

In each case the background adjusted emission rates are considerably less than the threshold emission rates, therefore detailed assessment would not be required.

The above assessment was carried out using the actual stack height. Considering the effective stack height only taking into account the “main” building to which the flue is attached, which is calculated as  $U_{\text{eff}} = 1.66 \times (U_{\text{act}} - H)$  where  $U_{\text{act}}$  is the actual stack height and  $H$  the building height to which the flue is attached,  $U_{\text{eff}}$  is 4.23m, i.e 0.5m below the actual stack height. Rounding this down to 4m for ease of use in the nomograms still provides considerable margins with respect to the threshold emission rates as shown below in Table 6.

**Table 6: Background Adjusted Emission Rates and Threshold Emission Rates**

Background Adjusted Emission Rates and Threshold Emission Rates				
U=4m	PM <sub>10</sub>	Ann NO <sub>2</sub>	Mean NO <sub>2</sub>	Hourly Mean NO <sub>2</sub>
Emission Factor mg/MJ	18	91		91
Thermal Input MW	0.06	0.06		0.06
Emission Rate g/s	0.0011	0.0055		0.0055
Background Conc µg/m <sup>3</sup>	11.4	3.98		7.96
Background Adjusted Emission Rates g/s	0.0000534	0.000153		0.00115
Threshold emission rate for 4m stack height g/s	~0.0011	~0.003		~0.007

It is therefore considered highly unlikely that the emissions from the biomass boiler will cause exceedences of the AQS standards and objectives in the immediate vicinity of the stack.

However, if the stack height is less than any adjacent building within 5 actual (physical) stack heights distance, the authority should, in the first instance, undertake the assessment assuming the release is from a low-level source. If this assessment indicates a problem, it will only be necessary to proceed to a Detailed Assessment if the emission is greater than 0.01 tonnes per annum. In this instance 0.0011 g/s is equivalent to 34kg per annum.

Given that there are nearby buildings further detailed assessment has been requested. Detailed modelling is provided in Section 6 of this report.

## 6 ADMS MODELLING ASSESSMENT

This assessment provides a more detailed prediction of the impact of emissions of atmospheric pollutants from the boiler on the area, using the proprietary ADMS 4.2 dispersion model (release 5 May 2010).

### 6.1 Model Description

ADMS 4.2 is the latest version of a new generation dispersion model supplied by Cambridge Environmental Research Consultants Ltd (CERC) which has been extensively validated. New generation dispersion models describe the atmospheric boundary layer in terms of the boundary layer depth and the Monin-Obukhov length and allow for the use of a skewed Gaussian distribution under convective meteorological conditions. These facilities allow for accurate predictions of emission concentrations under different meteorological conditions.

The model is also capable of considering the effect of both local terrain and buildings on pollutant dispersion. ADMS4 is validated to international dispersion modelling standards and is considered the foremost UK dispersion model for modelling atmospheric emissions from industrial sources. ADMS4 is commonly used by environmental regulators, and a previous version of the model was used to derive the dispersion characteristics used to determine the significance of atmospheric emissions in the Pollution Prevention and Control (PPC) H1 Guidance Note<sup>8</sup>.

### 6.2 Meteorological data

ADMS 4.2 uses hourly sequential or annual statistical meteorological data to calculate atmospheric dispersion. Hourly sequential data is appropriate for both long term annual means and short term hourly and 24-hourly means. The meteorological parameters used are wind speed and direction, near-surface temperature, cloud cover, relative humidity and precipitation.

The meteorological data used in this assessment were obtained from the UK Meteorological Office. The closest meteorological station to the site from which suitable data is available for dispersion modelling is located at Leuchars which is approximately 35km as the crow flies from Stanley.

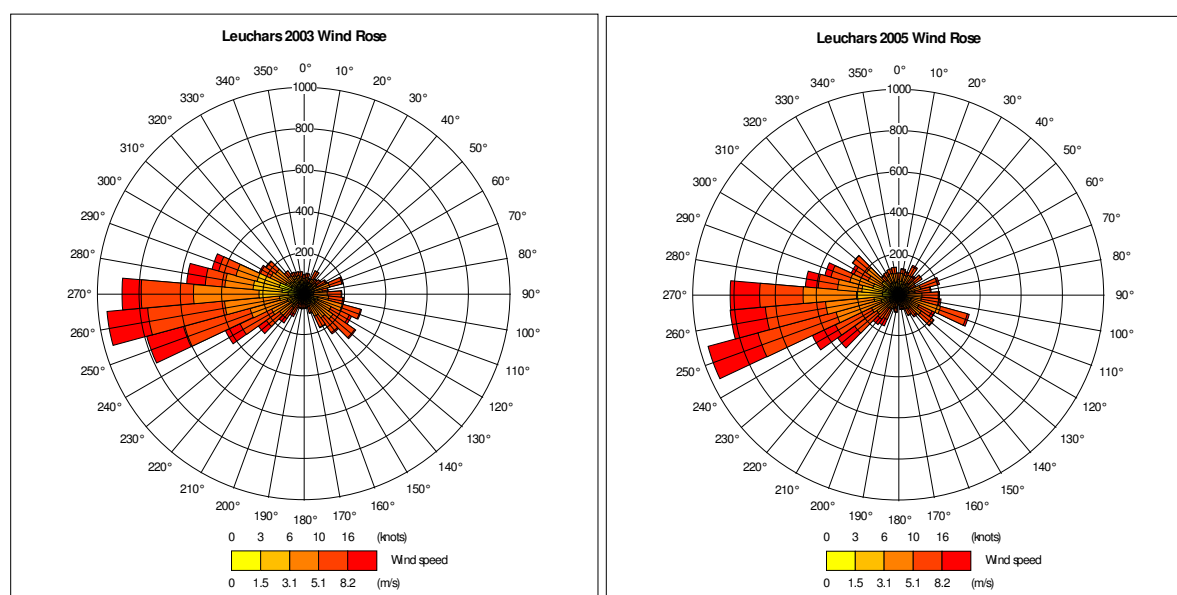
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<sup>8</sup>

[http://www.sepa.org.uk/air/process\\_industry\\_regulation/pollution\\_prevention\\_\\_control/uk\\_technical\\_guidance/uk\\_horizontal\\_guidance/h1.aspx](http://www.sepa.org.uk/air/process_industry_regulation/pollution_prevention__control/uk_technical_guidance/uk_horizontal_guidance/h1.aspx)

Meteorological datasets were examined for five years from 2003 to 2007, the model was run using year 2003 and one sensitivity run using year 2005 for comparison (Windroses are provided in Diagram 1 below). Examination of the wind roses shows that the winds measured at Leuchars are predominantly from the west with very few winds from the north and east/south east.

**Diagram 1: Wind roses 2003 and 2005**



### 6.3 Modelled domain

Concentrations were calculated over a regular Cartesian grid pattern and at specified receptor points as detailed below, and shown in Figure 2. The modelled domain consisted of a 500m by 500m square grid centred on the stack. The number of calculation points was set at 51 by 51 which provides a very detailed grid of predicted concentrations every 10 metres. The extent of the calculation grid was 310620 to 311120 and 733035 to 733535 (Ordnance Survey Grid easting and northing).

### 6.4 Defined area and receptors

A number of identified sensitive receptor locations have been included in the model to represent a range of locations where humans may be exposed to atmospheric pollutant emissions from the site. The sensitive receptors included in this analysis consist of residential properties. The receptor locations used in the study are presented in Table 7 and are shown in Figure 1.



**Table 7: Sensitive receptors used in the study**

Receptor	Grid reference		Receptor type
	Easting	Northing	
Receptor 1	310926	733310	Residential
Receptor 2	310896	733342	Residential
Receptor 3	310862	733314	Residential
Receptor 4	310859	733252	Residential
Receptor 5	310839	733257	Residential
Receptor 6	310854	733300	Residential
Receptor 7	310838	733296	Residential
Receptor 8	310871	733264	Residential

## 6.5 Buildings

Buildings with a height greater than one third of the stack height and within five stack heights of the stack position can have an influence on plume dispersion. The hotel annex and stores will have the most impact however a number of local houses were also included to assess local dispersion effects and were therefore included in the dispersion model. The buildings which were included in the assessment are presented in Table 8 and their relative locations shown on Figure 1.

**Table 8: Building parameters included in the model**

Building	Grid reference		Height (m)	Length (m)	Width (m)	Orientation (°)
	Easting	Northing				
Stores building	310867.6	733292.2	2.2	5.57	18.25	245
Hotel Annex	310882.8	733278.5	4.75	19.08	16.13	63.43
Hotel	310903.5	733278.5	12	14.8	24.86	63.43
House 1	310851.4	733306.5	5	8.62	12.38	64.75
House 2	310873.5	733257.8	5	11.98	8.89	155.32
House 3	310863.2	733319.1	5	6.97	14.79	152.35
House 4	310837.6	733302.1	5	9.74	12.36	153.05
House 5	310860.9	733250.4	5	13.42	8.29	64
House 6	310837.8	733252.4	5	7.84	31.54	64

The building lengths and widths were set with reference to an OS Mastermap of the area. Models were run with varying configurations of the Hotel and Annex to ascertain effects on dispersion.

## 6.6 Terrain

The topographical characteristics of the land surrounding a site will have an influence on the dispersion of pollution in that area. This can be accounted for by setting an appropriate surface roughness length used in the model or by using a terrain file. In this case, a surface roughness of 0.5m was used which represents a typical surface roughness length for open suburbia. A surface roughness of 0.2m representing an agricultural area was used for the meteorological measurement site at Leuchars.

Wind flows can be altered by the terrain of an area which can affect the dispersion of a plume. In particular, slopes with a gradient greater than 1 in 10 can impact on this dispersion. The terrain surrounding Stanley site is considered to be relatively flat, and is hence unlikely to significantly affect pollutant dispersion; therefore terrain effects were not included in the model.

## 6.7 Model Results & Discussion

Five runs were undertaken as follows:

- Run 1, all buildings, average annex height 5.5m.
- Run 2, all buildings, lower annex height to 4.75m
- Run 3, removed hotel main building
- Run 4, removed all hotel buildings
- Run 5, as run 2 but met year 2005

The output for all 5 runs for the highest maximum grid value for NO<sub>2</sub> and for PM<sub>10</sub>, for long (annual) and short term (1 hour for NO<sub>2</sub> and 24-hour for PM<sub>10</sub>) means, are all presented in Table 9. The process contribution (PC) is added to the background value determined earlier (see section 4.1). For short term output the background is assumed to be twice the long term (annual average) background from Table 4, as recommended in the Environment Agency and EPR H1 Annex F guidance note<sup>9</sup>.

All resulting total concentrations are substantially below the air quality standards. The highest values are highlighted. Note that for all cases except the NO<sub>2</sub> 1-hour mean the highest values occur for the scenario modelled without hotel buildings. For the NO<sub>2</sub> one

<sup>9</sup> <http://www.environment-agency.gov.uk/business/topics/permitting/36414.aspx>

hour mean the highest value occurs where the main hotel building has been removed from the model.

The output for the receptor locations is presented in Table 10 for NO<sub>2</sub> and Table 11 for PM<sub>10</sub>. Only the process contributions are presented but adding the background for each case will result in totals substantially below the background.

Contour plots are presented in Figures 3 to 7 for PM<sub>10</sub> 24-hour 98.08<sup>th</sup> percentiles only.

The NO<sub>2</sub> results are based on a screening method of 100% conversion of NO<sub>x</sub> to NO<sub>2</sub> and are therefore represent a substantial overestimate of impact. As the results are significantly below the AQS they were not plotted.

The PM10 24-hour mean 98.08<sup>th</sup> percentile contour plots demonstrate visually the dispersion pattern and the area most likely to be impacted for comparison to the short term air quality standards. Note the contour plots are Process Contribution (PC) only, the background has not been added. The total ambient concentration can be determined by adding the short term background, 22.80 µg/m<sup>3</sup>, to the value shown on the contour plot.

Table 9: Maximum predicted ground level pollutant concentrations, All model runs

Pollutant	Objective	BG	Run 1		Run 2		Run 3		Run 4		Run 5	
			PC	Total	PC	Total	PC	Total	PC	Total	PC	Total
NO <sub>2</sub> annual mean ( $\mu\text{g m}^{-3}$ )	40	3.98	1.64	5.62	1.64	5.62	1.94	5.92	2.54	6.52	1.68	5.66
NO <sub>2</sub> 99.79 <sup>th</sup> percentile of 1-hour means ( $\mu\text{g m}^{-3}$ )	200	7.96	13.15	21.11	13.15	21.11	16.26	24.22	11.93	19.89	12.66	20.62
PM <sub>10</sub> annual mean ( $\mu\text{g m}^{-3}$ )	18	11.40	0.60	12.00	0.60	12.00	0.71	12.11	0.93	12.33	0.61	12.01
PM <sub>10</sub> 98.08 <sup>th</sup> percentile of 24hr means ( $\mu\text{g m}^{-3}$ )	50	22.80	1.98	24.78	1.98	24.78	2.11	24.91	2.48	25.28	1.86	24.66

Where BG = background concentration; PC = Process Contribution; Total = BG + PC

Table 10: Predicted ground level pollutant concentrations (process contribution) at sensitive receptors, NO<sub>2</sub>.

Receptor	Run 1		Run 2		Run 3		Run 4		Run 5	
	NO <sub>2</sub> AM (µg m <sup>-3</sup> )	NO <sub>2</sub> 99.79 <sup>th</sup> percentile (µg m <sup>-3</sup> )	NO <sub>2</sub> AM (µg m <sup>-3</sup> )	NO <sub>2</sub> 99.79 <sup>th</sup> percentile (µg m <sup>-3</sup> )	NO <sub>2</sub> AM (µg m <sup>-3</sup> )	NO <sub>2</sub> 99.79 <sup>th</sup> percentile (µg m <sup>-3</sup> )	NO <sub>2</sub> AM (µg m <sup>-3</sup> )	NO <sub>2</sub> 99.79 <sup>th</sup> percentile (µg m <sup>-3</sup> )	NO <sub>2</sub> AM (µg m <sup>-3</sup> )	NO <sub>2</sub> 99.79 <sup>th</sup> percentile (µg m <sup>-3</sup> )
Receptor 1	0.69	4.94	0.69	4.94	0.69	4.94	0.66	5.02	0.70	4.73
Receptor 2	0.17	4.02	0.17	4.02	0.17	4.02	0.16	4.02	0.19	4.23
Receptor 3	0.34	8.12	0.34	8.12	0.34	8.12	0.32	7.77	0.28	8.80
Receptor 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Receptor 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Receptor 6	0.83	10.67	0.83	10.67	0.86	10.97	0.68	10.26	0.71	10.75
Receptor 7	0.64	7.51	0.64	7.51	0.64	7.58	0.63	7.71	0.64	7.50
Receptor 8	0.33	10.54	0.33	10.54	0.33	10.54	0.29	10.15	0.48	10.67

Where AM = annual mean

Table 11: Predicted ground level pollutant concentrations (process contribution) at sensitive receptors, PM10.

Receptor	Run 1		Run 2		Run 3		Run 4		Run 5	
	Annual mean ( $\mu\text{g m}^{-3}$ )	98.08 <sup>th</sup> percentile of 24-hr means ( $\mu\text{g m}^{-3}$ )	Annual mean ( $\mu\text{g m}^{-3}$ )	98.08 <sup>th</sup> percentile of 24-hr means ( $\mu\text{g m}^{-3}$ )	Annual mean ( $\mu\text{g m}^{-3}$ )	98.08 <sup>th</sup> percentile of 24-hr means ( $\mu\text{g m}^{-3}$ )	Annual mean ( $\mu\text{g m}^{-3}$ )	98.08 <sup>th</sup> percentile of 24-hr means ( $\mu\text{g m}^{-3}$ )	Annual mean ( $\mu\text{g m}^{-3}$ )	98.08 <sup>th</sup> percentile of 24-hr means ( $\mu\text{g m}^{-3}$ )
Receptor 1	0.25	0.75	0.25	0.75	0.25	0.73	0.24	0.70	0.25	0.74
Receptor 2	0.06	0.37	0.06	0.37	0.06	0.37	0.06	0.36	0.07	0.44
Receptor 3	0.12	0.81	0.12	0.81	0.12	0.81	0.12	0.77	0.10	0.87
Receptor 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Receptor 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Receptor 6	0.30	1.61	0.30	1.61	0.31	1.61	0.24	1.57	0.25	1.21
Receptor 7	0.22	1.27	0.22	1.27	0.22	1.27	0.22	1.28	0.23	1.47
Receptor 8	0.12	0.99	0.12	0.99	0.12	0.99	0.11	1.21	0.17	1.22

The contour plots for Runs 1 and 2 are shown in Figures 3 and 4. The figures show identical dispersion. Run 1 is based on an average annex height of 5.5m, run 2 reduces that to 4.75m in an attempt to model a roof that is lower across most of the area than the stack discharge point. During most westerly winds the plume will be carried down the side of the hotel and dispersed due to local surface roughness and turbulence. Winds from the North (as witnessed during the site visit) carry the plume over the annex building and dispersion is rapid above the buildings at more than 5m above ground level.

Figure 5 shows the impact should the main hotel building be removed from the model; a high point exists to the east of the chimney due to the predominant westerly winds, however it is of small magnitude ( $2.11 \mu\text{g}/\text{m}^3$  for the 98th %-ile of 24 hour means for  $\text{PM}_{10}$ ). Similarly the removal of the annex building from the model causes a high point in the contour plots (Figure 6) to occur to the east of the stack, but again of low magnitude ( $2.48 \mu\text{g}/\text{m}^3$  for the 98th %-ile of 24 hour means for  $\text{PM}_{10}$ ).

Figure 7 shows the effect of using a different meteorological dataset and can be compared directly with Figure 3. In this instance there is a slight change in dispersion pattern, but reference to Tables 9 to 11 shows the grid maxima are comparable.

## 7 CONCLUSION

An air quality assessment was carried out on a small biomass gasification boiler which examined the local built environment, the type of boiler proposed, the local topography and local meteorology. A site visit was undertaken during which visible observations of a cool start up plume were made. The assessment was based on two approaches, the use of local authority guidance TG(09) and detailed air dispersion modelling. Both approaches confirm that normal operation of the boiler results in dispersion of the emissions such that the resulting ambient concentrations are significantly below the air quality standards for  $\text{NO}_2$  and  $\text{PM}_{10}$ .

## Figures

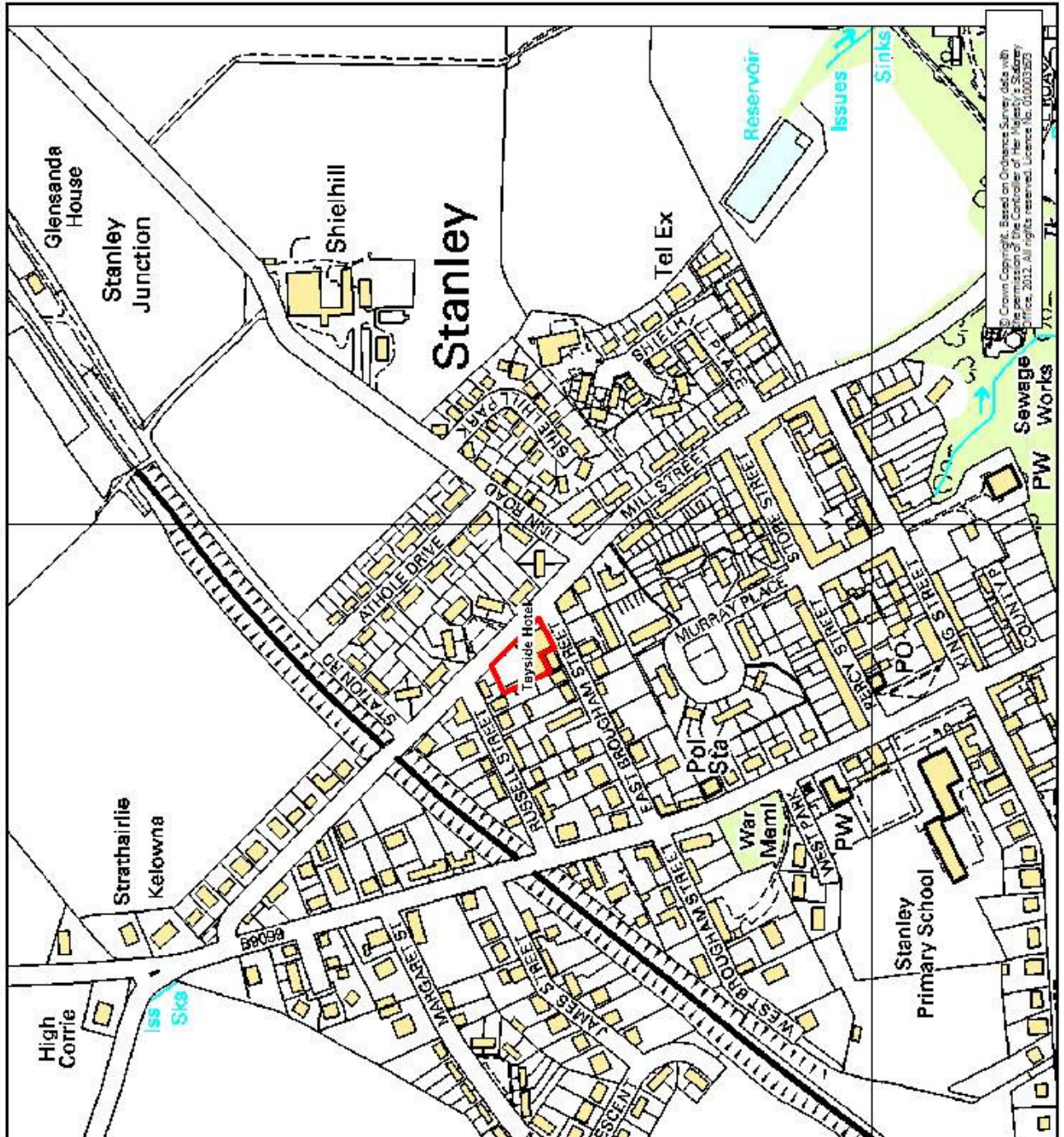


Tayside Hotel  
Atmospheric Impact Assessment  
Project Ref TAH001  
December 2012

Hotel location  
Site Boundary

Figure 1:  
Site Location

SEAL Environment Ltd  
8 Balfours Street  
Milingavie  
Glasgow  
G62 8HW





**Tayside Hotel  
Atmospheric Impact Assessment**

Project Ref TAH001  
December 2012

**Legend**  
Point Source  
Boiler chimney  
Receptor  
Receptor point  
Modelled buildings  
Building

**Figure 2:  
Receptors and buildings**

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8 Balfours Street  
Milingavie  
Glasgow  
G62 8HW



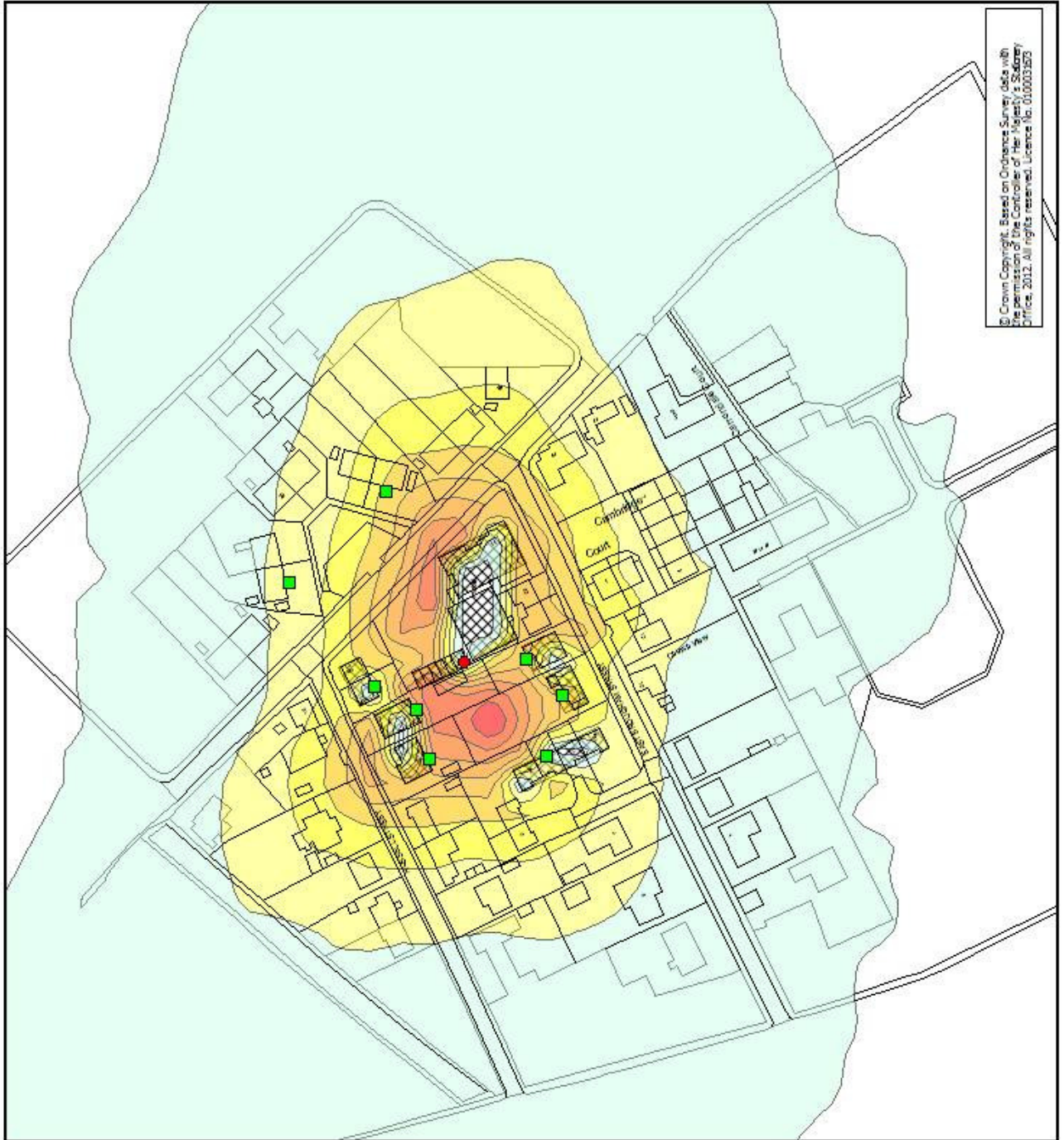
**Tayside Hotel  
Atmospheric Impact Assessment  
Project Ref TAH001  
December 2012**

Contour Plot Legend  
PM10 98.08th %-ile of 24 hour means  
 $\mu\text{g}/\text{m}^3$

0.10 to 0.30
0.30 to 0.50
0.50 to 0.70
0.70 to 0.90
0.90 to 1.10
1.10 to 1.30
1.30 to 1.50
1.50 to 1.70
1.70 to 1.90

Figure 3:  
Contour Plot for 98.08th percentile  
of 24-hour means, 2003 met data, all buildings

SEAL Environment Ltd  
8 Balfours Street  
Milngavie  
Glasgow  
G62 8HW





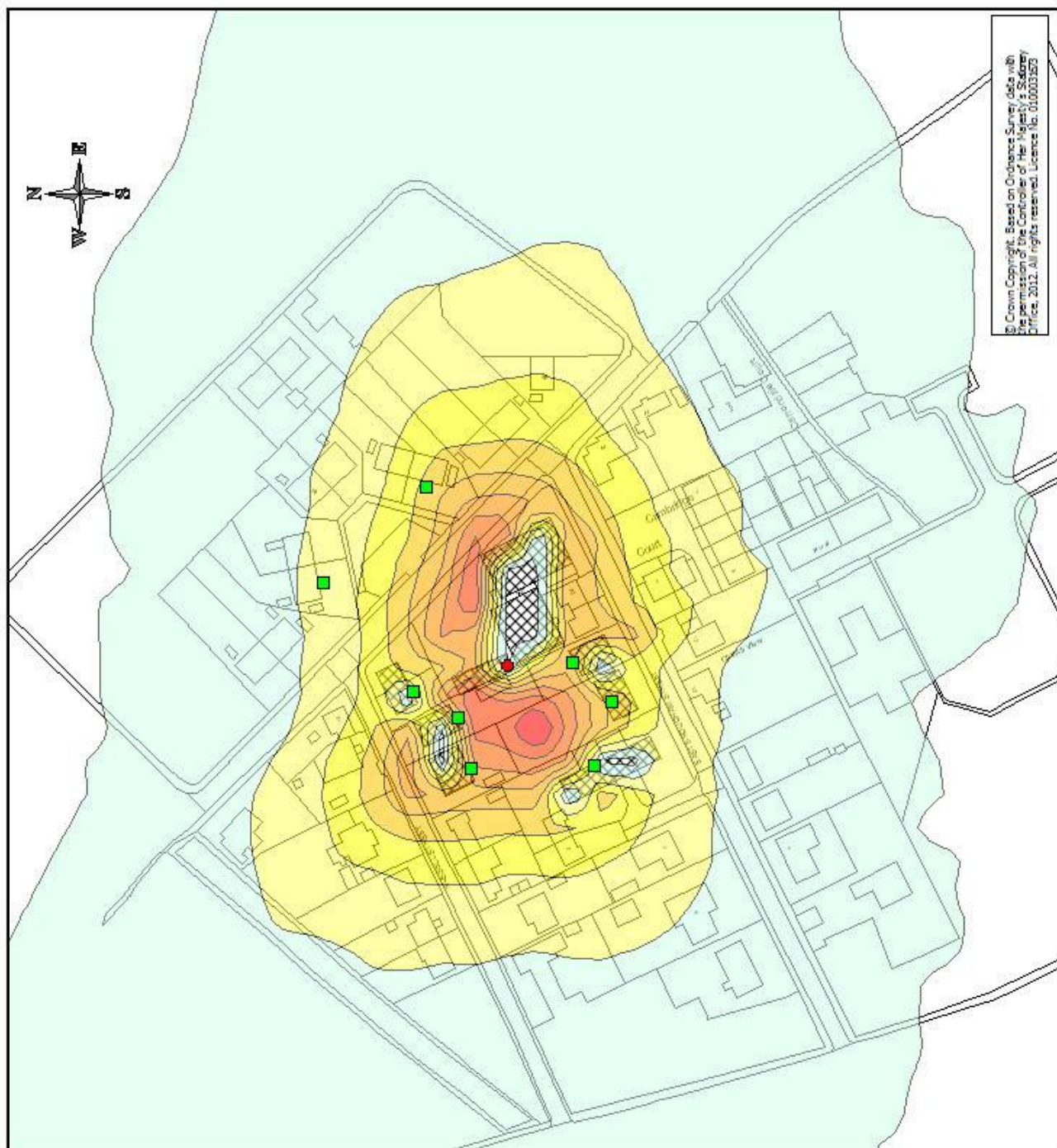
**Tayside Hotel  
Atmospheric Impact Assessment**  
  
**Project Ref TAH001  
December 2012**

**Contour Plot Legend**  
  
PM10 98.08th %-ile of 24 hour means  
µg/m3

0.10 to 0.30
0.30 to 0.50
0.50 to 0.70
0.70 to 0.90
0.90 to 1.10
1.10 to 1.30
1.30 to 1.50
1.50 to 1.70
1.70 to 1.90

**Figure 4:**  
  
Contour Plot for 98.08th percentile  
of 24-hour means, 2003 met data, all buildings,  
annex height 4.75m

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Milingavie  
Glasgow  
G62 8HW

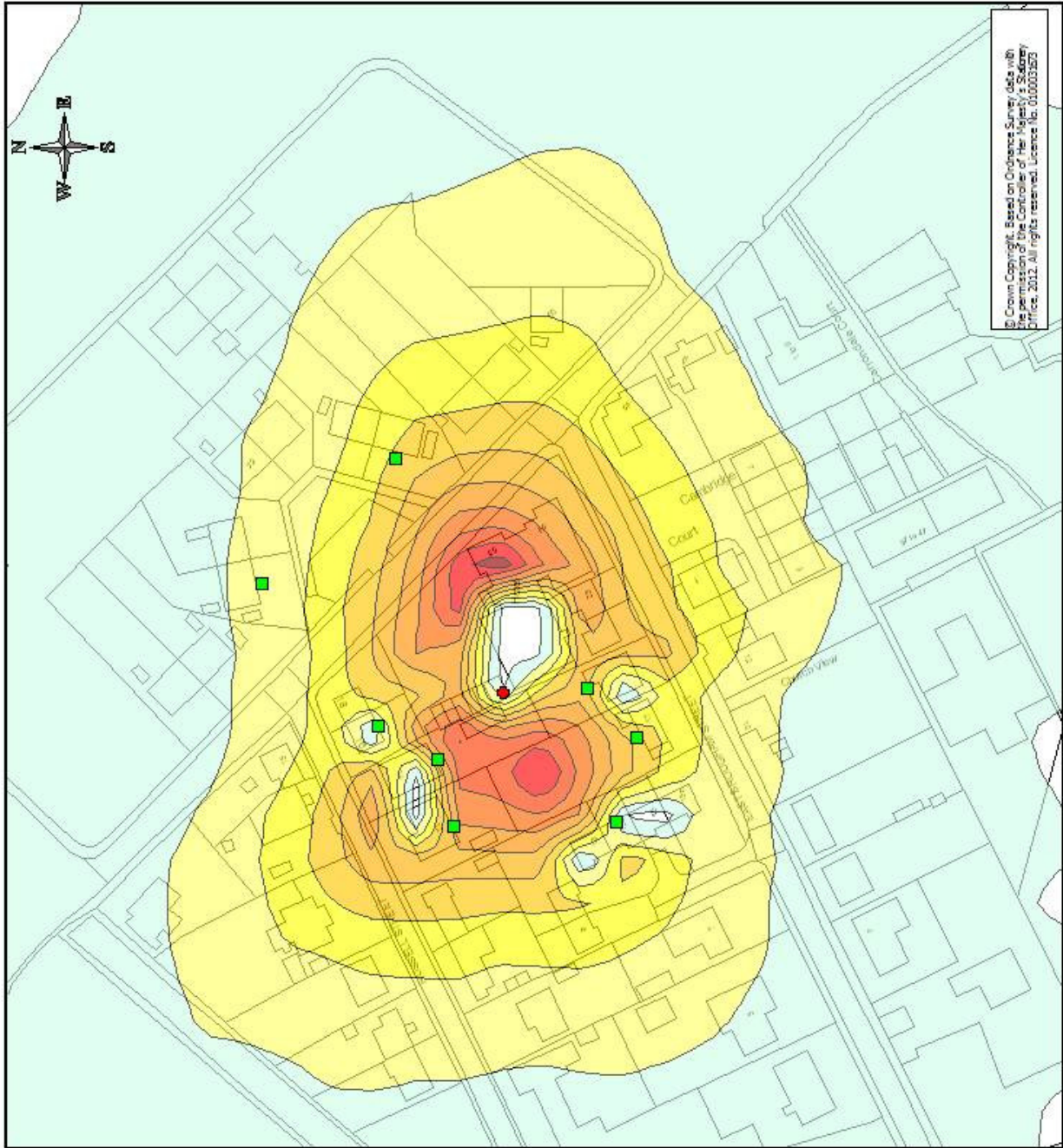


Contour Plot Legend  
 PM10 98.08th %-ile of 24 hour means  
 µg/m3

0.10 to 0.30
0.30 to 0.50
0.50 to 0.70
0.70 to 0.90
0.90 to 1.10
1.10 to 1.30
1.30 to 1.50
1.50 to 1.70
1.70 to 1.90
1.90 to 2.10

Figure 5:  
 Contour Plot for 98.08th percentile  
 of 24-hour means, 2003 met data, hotel removed  
 annex height 4.75m

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 8 Balfours Street  
 Milngavie  
 Glasgow  
 G62 8HW



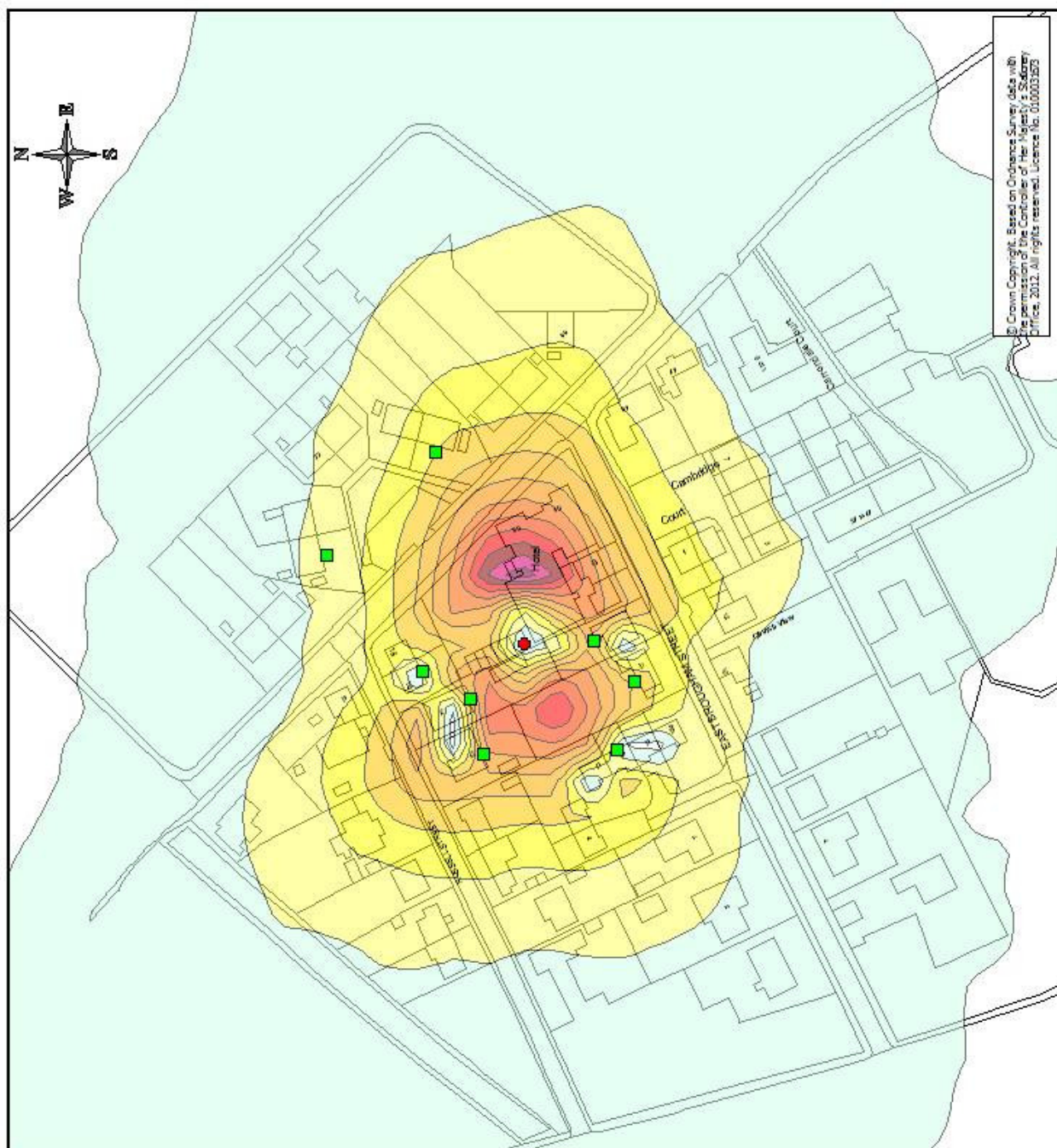


Contour Plot Legend  
 PM10 98.08th %-ile of 24 hour means  
 µg/m3

0.10 to 0.30
0.30 to 0.50
0.50 to 0.70
0.70 to 0.90
0.90 to 1.10
1.10 to 1.30
1.30 to 1.50
1.50 to 1.70
1.70 to 1.90
1.90 to 2.10
2.10 to 2.30
2.30 to 2.50

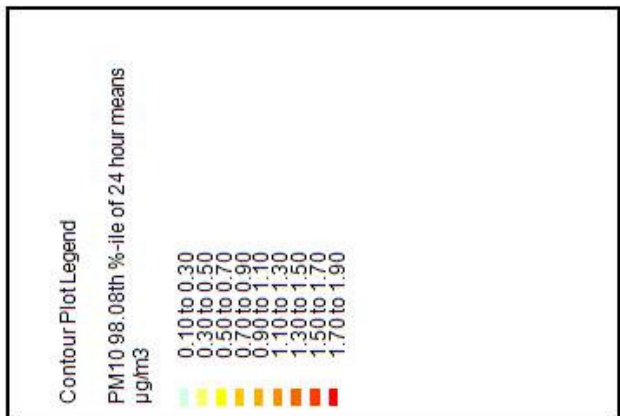
Figure 6:  
 Contour Plot for 98.08th percentile  
 of 24-hour means, 2003 met data,  
 no hotel buildings

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 8 Balfleurs Street  
 Milngavie  
 Glasgow  
 G62 8HW



**Tayside Hotel  
Atmospheric Impact Assessment**

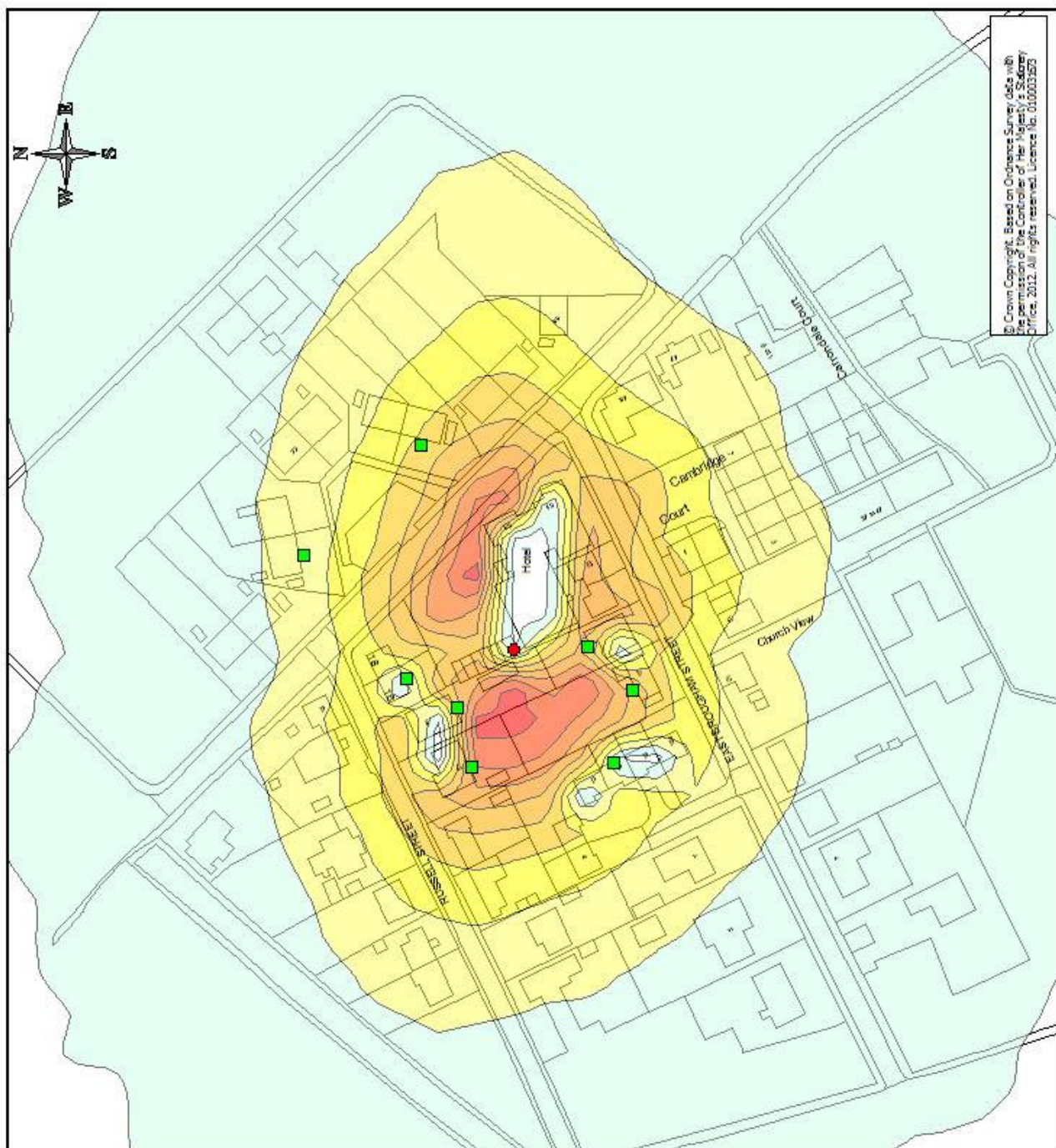
**Project Ref TAH001  
December 2012**



**Figure 7:**

Contour Plot for 98.08th percentile  
of 24-hour means, 2005 met data

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## **APPENDIX 1: Stoichiometry calculations**

Spreadsheet to calculate fuel requirements, exhaust gas volume flow rate, for combustion fuel of known composition.

Only blue cells can be changed. Please unprotect sheet to amend any other data or formulas.

**Step 1: Calculate mass of oxygen required for Stoichiometric combustion**

Element	Molecular weight	%	Product	Molecular weight ratio of O <sub>2</sub> (kg/kg)	kg O <sub>2</sub> required (kg/kg)
Carbon	12	42.4	CO <sub>2</sub>	2.666666667	1.1307
Hydrogen	1	4.56	H <sub>2</sub> O	8	0.3648
Oxygen	16	32	O <sub>2</sub>	-1	-0.3200
Nitrogen	14	0.1	N <sub>2</sub>	0	0.0000
Sulphur	32	0.03	SO <sub>2</sub>	1	0.0003
Moisture		20	H <sub>2</sub> O	0	0.0000
Chlorine	35	0	Ignored		0.0000
Ash		1	Ignored		0.0000
		100.09			
<b>Total</b>					<b>1.176</b>

**Step 2: Mass of air required for stoichiometric combustion**

**NB. Assume that air has 23.2% Oxygen., 76.8% Nitrogen by mass**

Mass O <sub>2</sub> in air (%) =	23.2 %		
Mass N <sub>2</sub> in air (%) =	76.8 %		
Mass of O <sub>2</sub> required to combust 1kg of wood =			1.176 kg/kg
Mass of N <sub>2</sub> as a consequence to combust 1kg of wood =			3.892 kg/kg
H <sub>2</sub> O as humidity =	at 10°C	0.76%	0.03857731 kg/kg
Required weight of dry air =			5.068 kg/kg
Required weight of humid air =			5.107 kg/kg

**Step 3: Calculate the weight of the combustion products**

Element/molecule	Mass (kg/kg)	+ oxygen required (kg/kg)	Product	Mass combustion products/mass fuel (kg/kg)
Carbon	0.4240	1.1307	CO <sub>2</sub>	1.5547
Hydrogen	0.0456	0.3648	H <sub>2</sub> O	0.4104
Oxygen	n/a	0.0000	O <sub>2</sub>	
Nitrogen	0.0010	0.0000	N <sub>2</sub>	0.0010
Sulphur	0.0003	0.0003	SO <sub>2</sub>	0.0006
Additional N <sub>2</sub>	3.8922	0	N <sub>2</sub>	3.8922
Moisture	0.2000		H <sub>2</sub> O	0.2000
Humidity	0.0386		H <sub>2</sub> O	0.0386
<b>Total =</b>				<b>6.0974 kg/kg</b>
<b>Total dry products =</b>				<b>5.4485 kg/kg</b>

**Step 4: Calculate stoichiometric products of combustion by volume**

Atmospheric pressure =

101.3 kPa

Temperature =

10 °C

Molar gas volume =

10.2 m³

Operational temperature

140 °C

Ideal gas constant =

8.314472 J mol<sup>-1</sup> K<sup>-1</sup>

Element/molecule	Mass (kg)	Mol. Weight (g/mol)	No. of moles	volume at operational temperature (m³)
CO <sub>2</sub>	1.5547	44	35.333	1.198
H <sub>2</sub> O	0.4104	18	22.800	0.773
N <sub>2</sub>	3.8932	28	139.043	4.713
SO <sub>2</sub>	0.0006	64	0.009	0.000
Physical H <sub>2</sub> O	0.2000	18	11.111	0.377
Humidity	0.0386	18	2.143	0.073
			Total	7.134 m³

% CO <sub>2</sub>	Wet basis	16.79%
% CO <sub>2</sub>	Dry basis	20.26%

**Step 5: include excess air**

Weight of dry stoichiometric air =	5.068 kg/kg
Excess Ratio =	40.00%
Weight of dry + dry excess air =	7.095 kg/kg
Weight dry excess air =	2.027 kg/kg

Humidity H<sub>2</sub>O = at 10C 0.76% see table adjacent

Weight of H<sub>2</sub>O in excess air = 0.0154 kg/kg

Total weight of final combustion products = 8.140 kg/kg

Compound	Mass (kg)	Mol mass (g/mol)	No. of moles	Volume at operational temp (m <sup>3</sup> )
CO <sub>2</sub>	1.5547	44	35.33	1.198
H <sub>2</sub> O	0.4104	18	22.80	0.773
N <sub>2</sub>	3.8932	28	139.04	4.713
SO <sub>2</sub>	0.0006	64	0.01	0.000
Physical H <sub>2</sub> O	0.2000	18	11.11	0.377
Humidity	0.0386	18	2.14	0.073
O <sub>2</sub> from excess	0.4703	32	14.70	0.498
N <sub>2</sub> from excess	1.5569	28	55.60	1.885
H <sub>2</sub> O from excess	0.0154	18	0.86	0.029
<b>Total Volume</b>				<b>9.55 m<sup>3</sup></b>

**Step 6: Volume check of the combustion products when fired with excess air**

Approx. dry molar weight of air = 28.928 g/mol

Excess air - number of moles = 70.08 moles

Additional volume = 2.38 m<sup>3</sup>/kg

Total flue gas = 9.51 m<sup>3</sup>/kg

% CO<sub>2</sub> on wet basis = 12.55%      % O<sub>2</sub> on wet basis = 5.22%

% CO<sub>2</sub> on dry basis = 16.88%      % O<sub>2</sub> on dry basis = 6.39%

**Finally: define thermal output to determine fuel consumption and exhaust gas flow rate**

Thermal output required 0.06 MW

Calorific Value of wood fuel@ 20% moisture 14.3 GJ/tonne

Wood consumption at full fire (tonnes/hour)= 0.015 tonnes/hour = 15kg per hour as described in literature 360 per day

Wood consumption at full fire (kg/s) = 0.00420 kg/s

Calculated gas flow (actual conditions) = 0.0399 m<sup>3</sup>/s

Calculated gas flow at STP (0 °C, 101.3 kPa)= 0.026 Nm<sup>3</sup>/s

## APPENDIX 2: Orlingo data sheet extracts

**Measurement results:** 1. boiler: ORLIGNO 200 60 kW: wood

**Average measured and calculated values (solid fuels):**

Period of burning: Type of boiler: Date of testing: Test conditions:	I. ORLIGNO 200 60 kW 2009-07-20 Rated capacity	II. ORLIGNO 200 60 kW 2009-07-20 Rated capacity
Type of fuel:	wood/beech/45cm	wood/beech/45cm
Rated heat capacity (specified by manufacturer) [kW]	60.0	60.0
Combustion product temperature [°C]	139.5	140.3
Fuel consumption [kg/hour]	15.38	15.17
Outlet water temperature [°C]	57.7	57.0
Outlet water temperature [°C]	78.5	77.0
Cooling water temperature [°C]	18.7	18.2
Cooling water flow rate [m <sup>3</sup> / hour]	0.806	0.804
Draught behind boiler [Pa]	27.0	28.0
Ambient temperature [°C]	27.3	27.9
Relative air humidity [%]	41.0	41.0
Barometric pressure [kPa]	99.885	99.885

**Analysis of combustion products:**

Period of burning: Type of boiler: Date of testing: Test conditions:	I. ORLIGNO 200 60 kW 2009-07-20 Rated capacity	II. ORLIGNO 200 60 kW 2009-07-20 Rated capacity
Type of fuel:	wood/beech/45cm	wood/beech/45cm
Oxygen O <sub>2</sub> [%]	6.13	5.88
Carbon dioxide CO <sub>2</sub> [%]	13.45	13.68
Carbon monoxide CO [ppm]	1139	973
Higher hydrocarbons OGC [ppm]	167	116
Nitrogen oxides NO <sub>x</sub> [ppm]	117	121

**Fuel analysis**

Fuel type	Wood			
Analytical indicator	Symbol	Unit	Value	Uncertainty
Heat of combustion	$Q_s$	[MJ/kg]	16.46	0.14
Caloric value	$Q_i$	[MJ/kg]	14.75	0.14
All water in original condition	$W'_t$	[% by weight]	$17.35 \pm 0.01$	
Ash	A	[% by weight]	$1.14 \pm 0.02$	
Carbon	C	[% by weight]	40.93	0.25
Hydrogen	H	[% by weight]	5.88	0.10
Nitrogen	N	[% by weight]	0.20	0.10
Sulphur	S	[% by weight]	0.044	
Chlorine	Cl	[% by weight]	0.022	
Oxygen – calculation for 100%	O	[% by weight]	34.44	
CO <sub>2</sub> max.	CO <sub>2 max.</sub>	[% by volume]	19.12	
Conversion factor $f_{emis}$ for the conversion of emissions in [mg/m <sup>3</sup> ] to [mg/MJ]	$f_{emis}$	[-]	0.26843	
Min. required volume of O <sub>2</sub>	$V_{O_2 \min}$	[m <sup>3</sup> /kg]	0.845	
Min. required dry air volume	$V_{vz \min}$	[m <sup>3</sup> /kg]	4.025	
Min. quantity of dry chimney gas	$V_{ks \min}$	[m <sup>3</sup> /kg]	3.934	

**Note:** Sample in the original condition

**Measurement results:** 1. boiler: ORLIGNO 200 60 kW, rated output, fuel: wood

Boiler capacity	Average emission values								
	Measured values					Converted values			
	O <sub>2</sub> [%]	CO [ppm]	NO <sub>x</sub> [ppm]	OGC [ppm]	Dust [mg/m <sup>3</sup> ]	CO [mg/MJ]	NO <sub>x</sub> [mg/MJ]	OGC [mg/MJ]	Dust [mg/MJ]
Rated	6.01	1056	119	141	48	494	91	28	18

**Test evaluation:**

The measured emission values do not exceed the limit values.

### **APPENDIX 3: Photographic Plates**



**Photograph 1: local chimney smoke**



**Photograph 2: local chimney smoke**



**Photograph 3: Start up approx. 11.25**



**Photograph 4: 5 mins after startup**





**Photograph 5: 10 mins after start up**



**Photograph 6: 45 mins after start up, showing chimney height in relation to Annex**











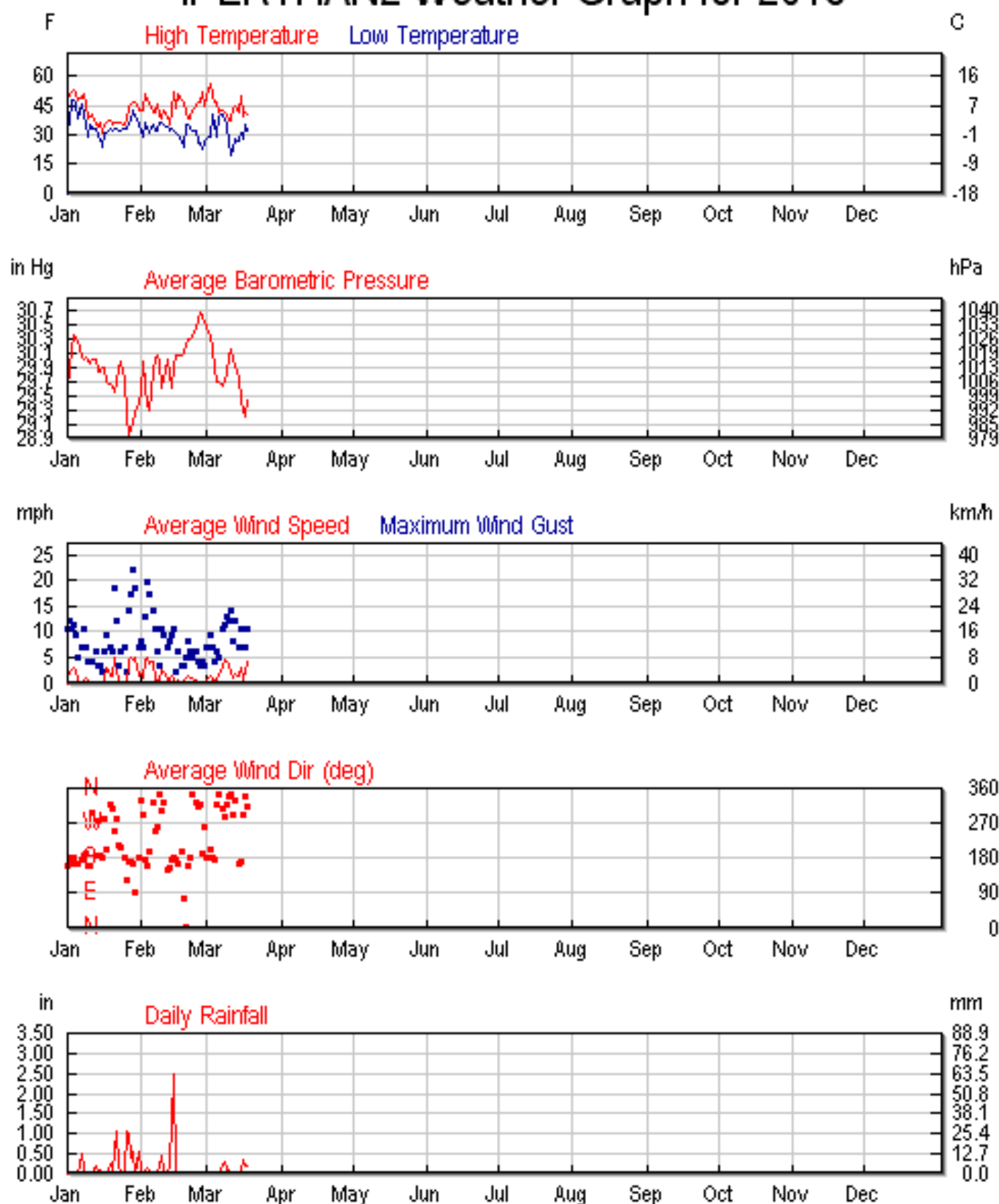






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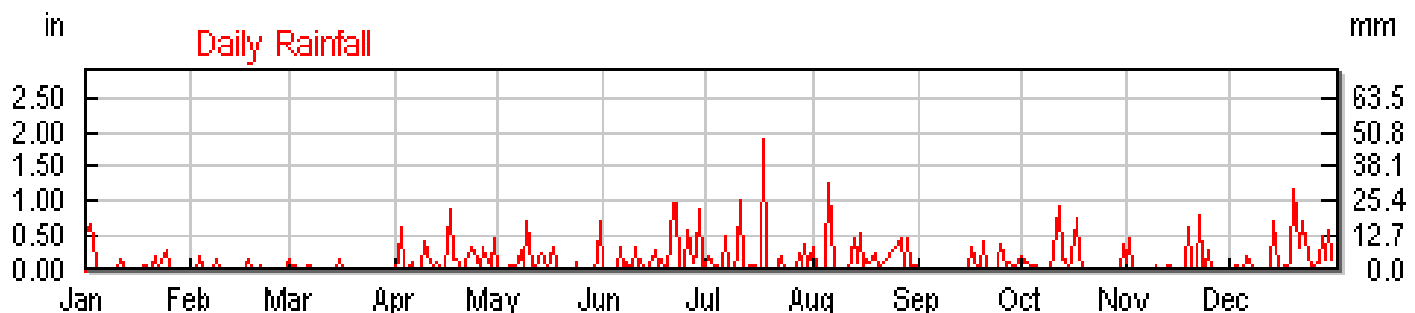
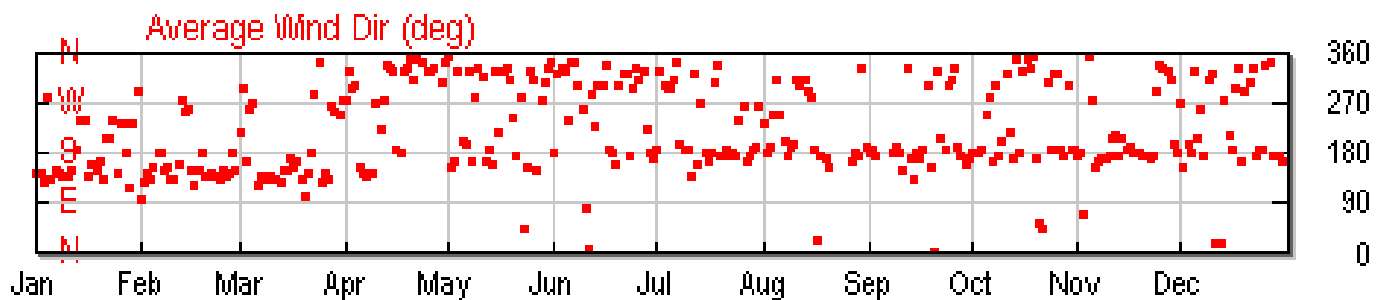
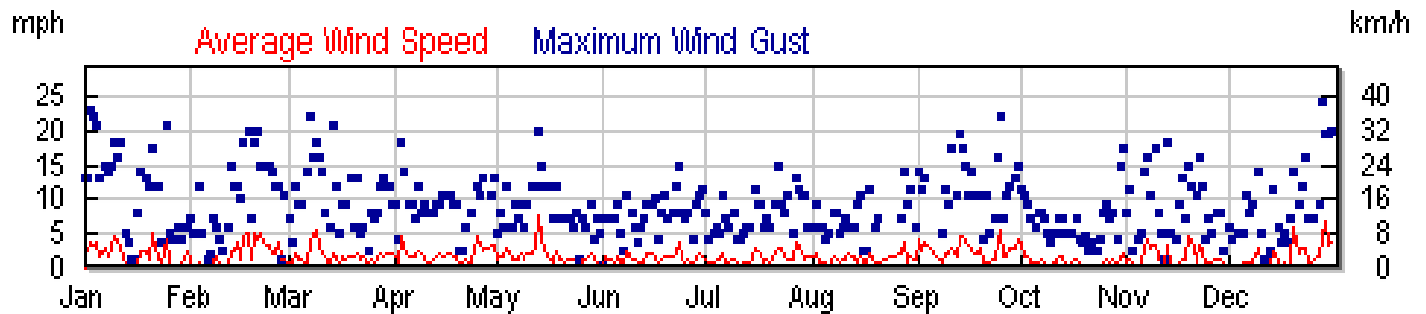
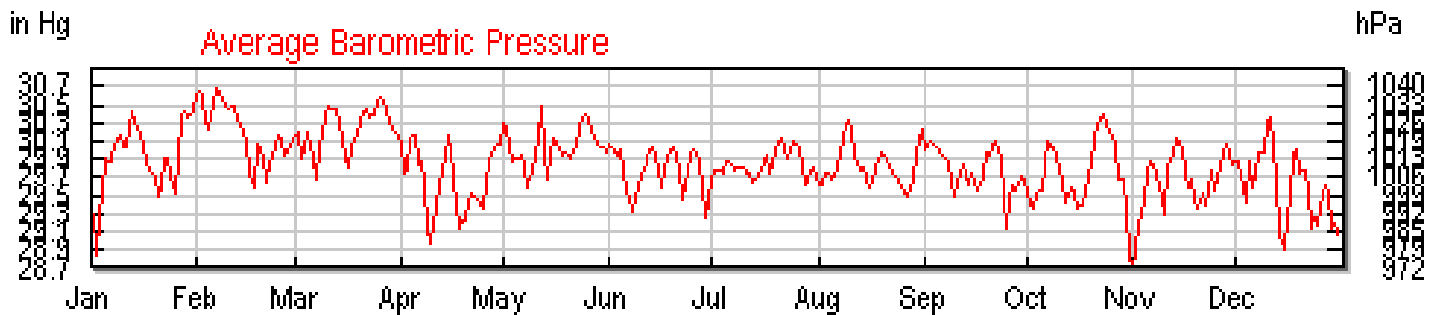
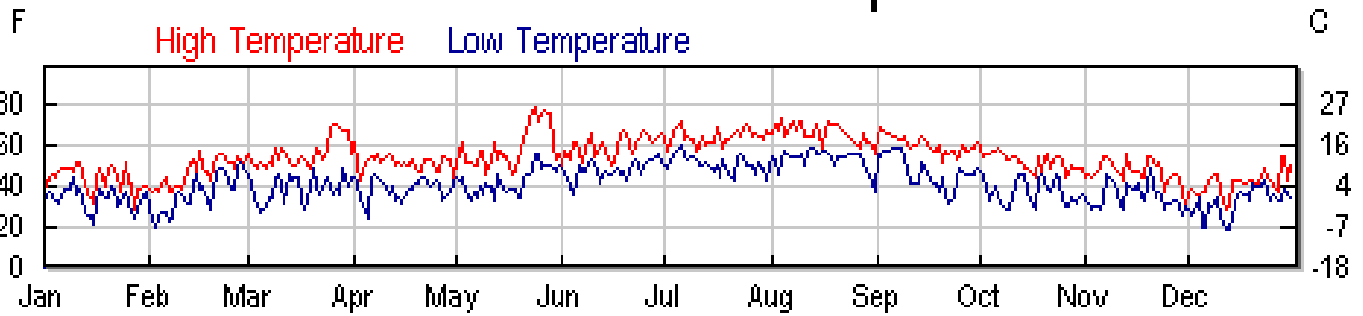
## IPERTHAN2 Weather Graph for 2013



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wunderground.com

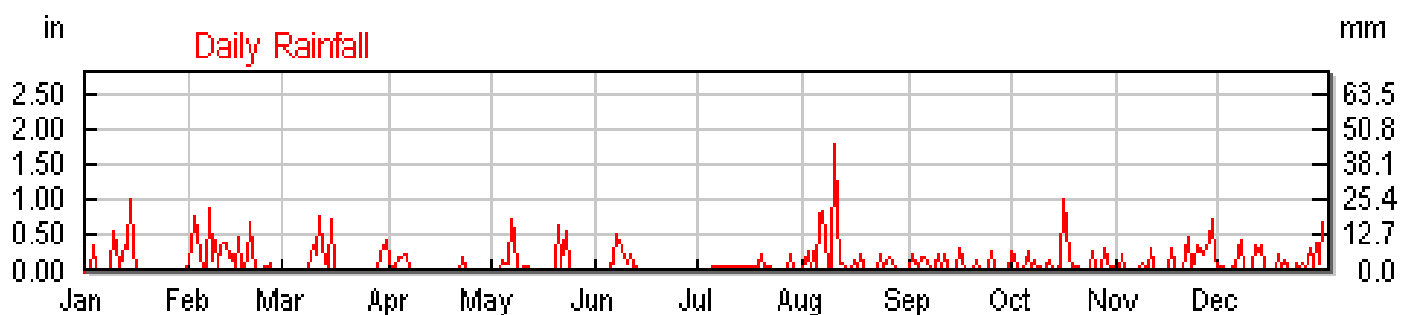
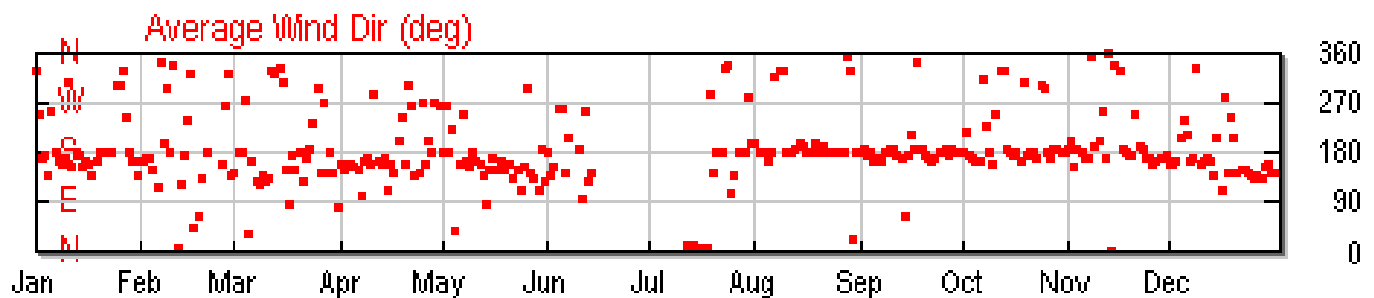
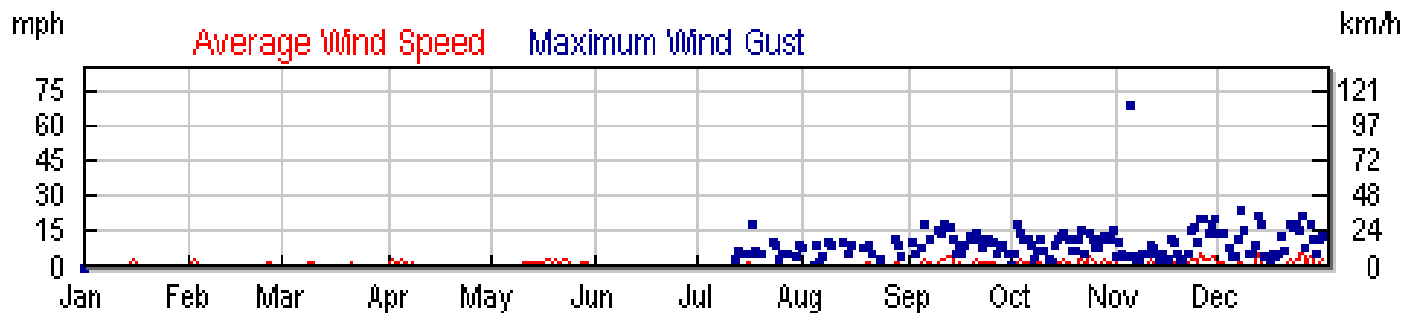
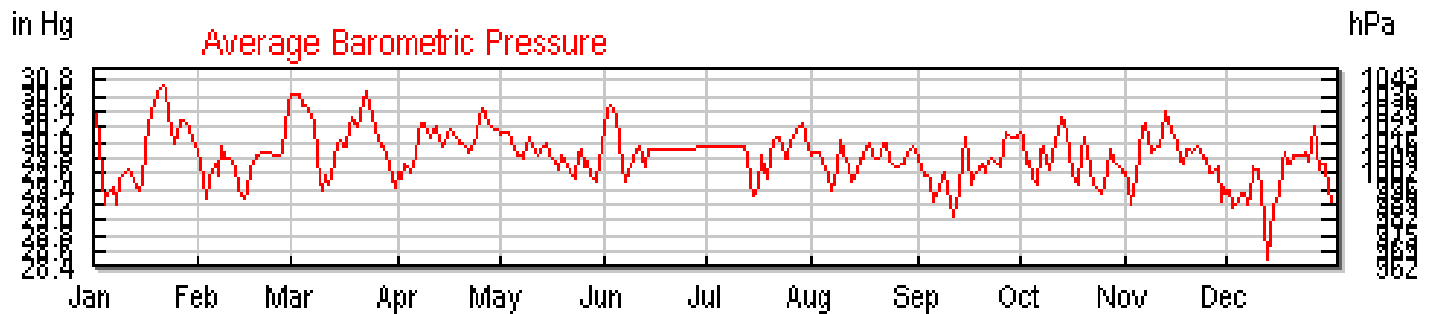
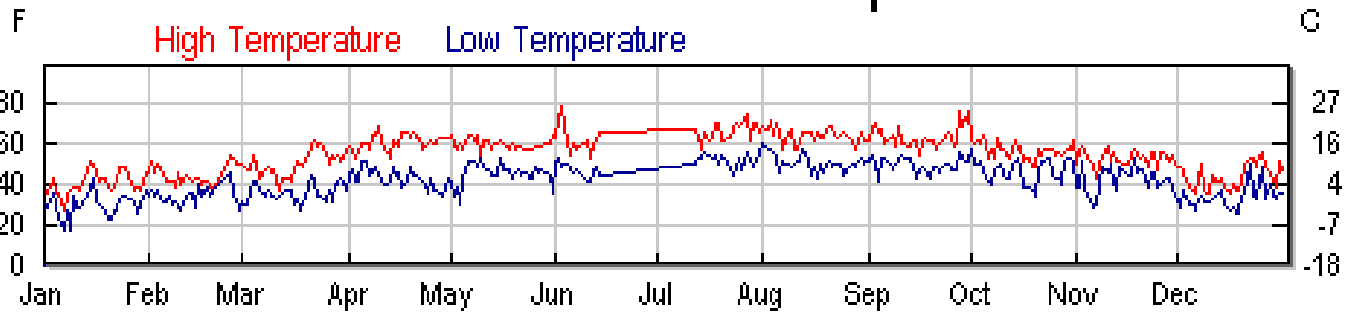


# IPERTHAN2 Weather Graph for 2012





# IPERTHAN2 Weather Graph for 2011



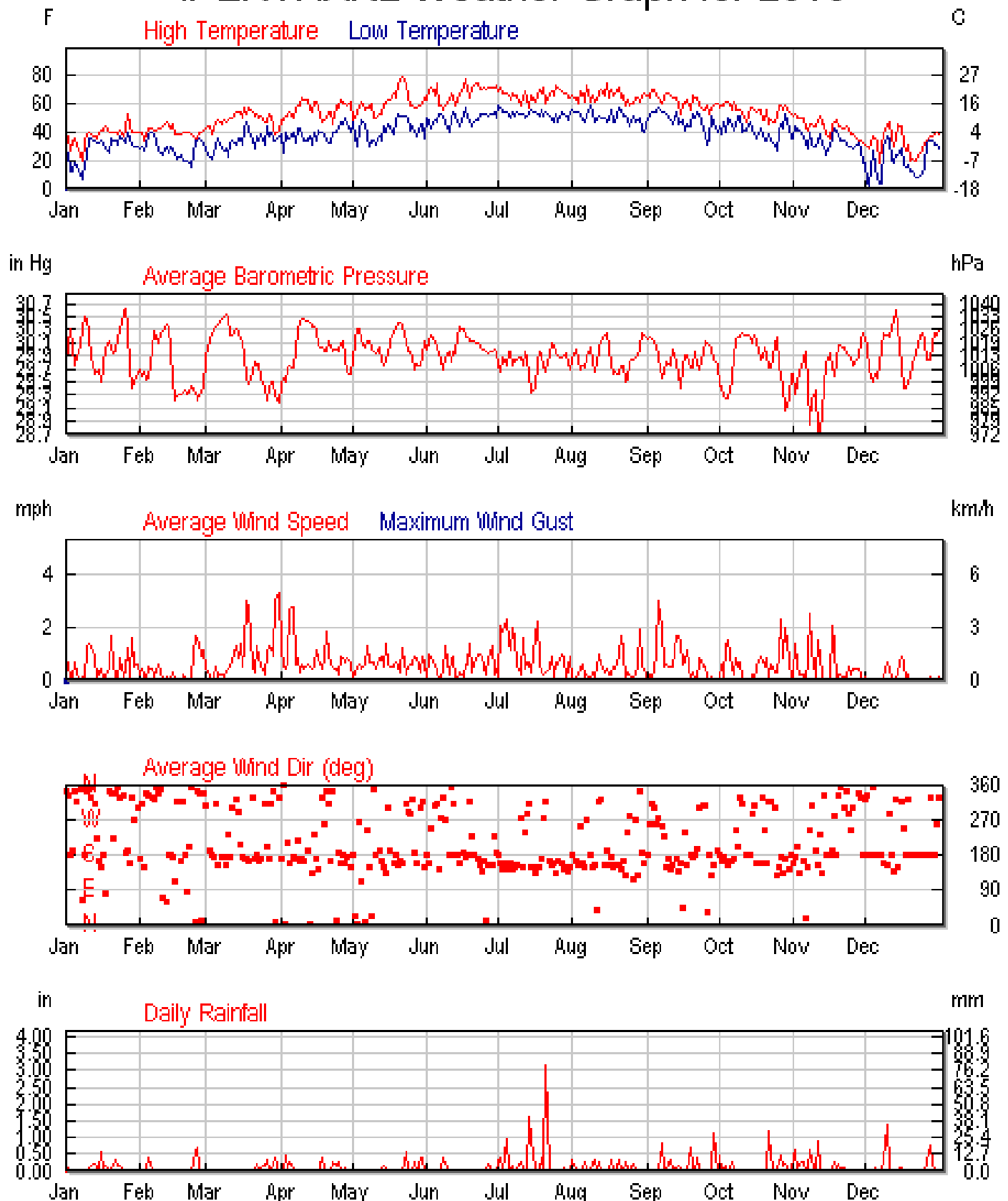


Pressure: 1040.2hPa

954.2hPa

Precipitation: 968.2mm

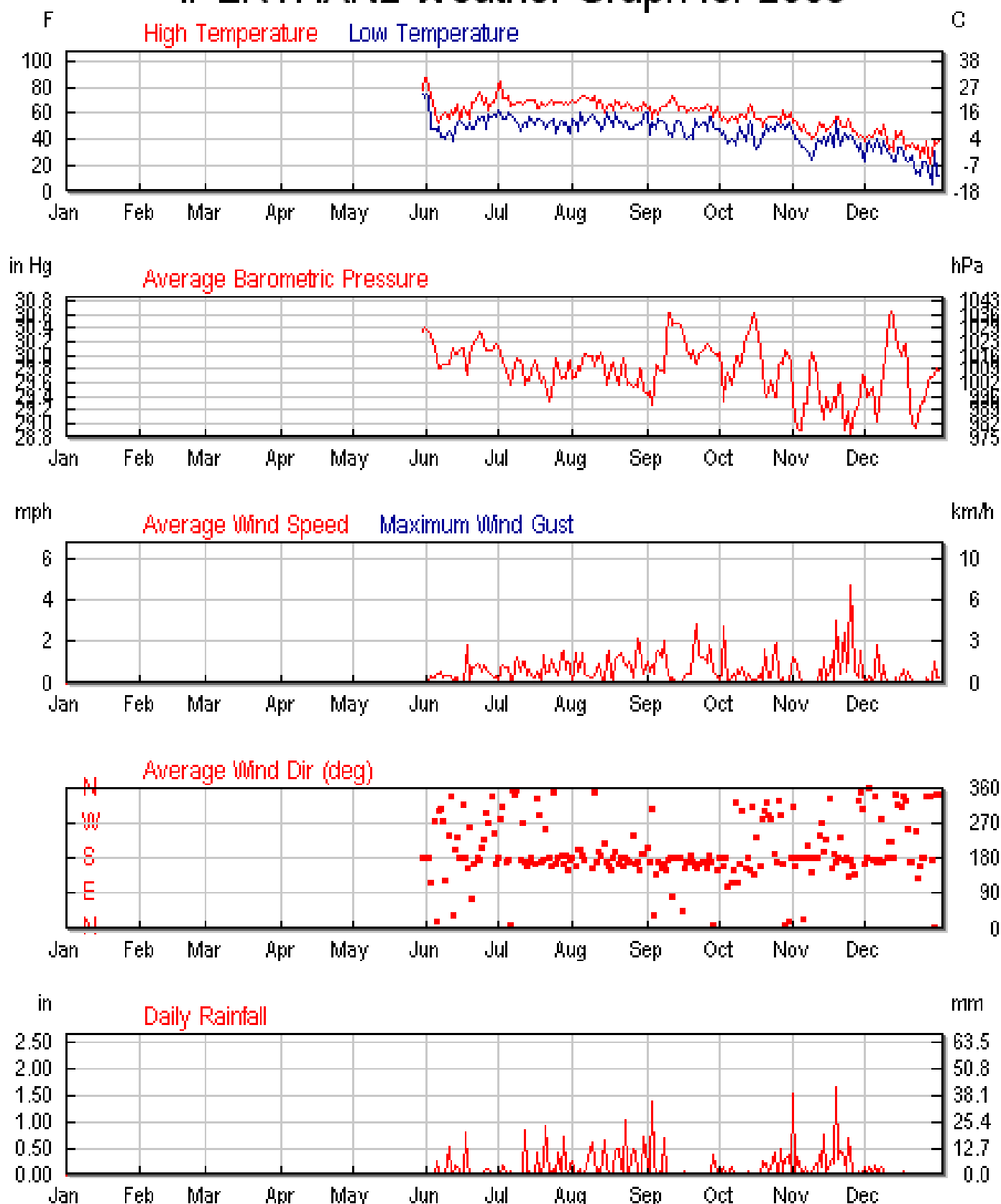
## IPERTHAN2 Weather Graph for 2010





itation: 708.9mm

# IPERTHAN2 Weather Graph for 2009



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## **TEST REPORT**

### **No. 39-8910/3**

**Product:** Hot-water boiler burning wood with manual fuel supply

**Type designation:** ORLIGNO 200

**Versions:** ORLIGNO 200 60 kW

**Customer:** EKO-VIMAR ORLAŃSKI Sp. Z o.o.  
ul. Nyska 17b  
48-385 Otmuchów  
Poland

**Manufacturer:** EKO-VIMAR ORLAŃSKI Sp. Z o.o.  
ul. Nyska 17b  
48-385 Otmuchów  
Poland

**Responsible employee:** Ing. Stanislav Buchta

**Report issue date:** 2011-02-02

**Distribution list:** 1 copy to the Engineering Test Institute  
1 copy to the Customer



This Report was drafted on the basis of Order B-38376 of 2010-09-01, Contract B-38376/39 of 2010-09-15 and Contract Supplement No. 1. The above mentioned Report reproduces the test results of Report No. 39-8811/3 of 2010-06-24.

## I. Product description

The steel hot-water boiler with manual fuel supply, type ORLIGNO 200, is designed for the burning of wood on the principle of upward burning with pyrolysis combustion.

The boiler is designed for the central heating of family homes, residential premises, flats, offices, small community premises, business premises and stores, etc.

The boiler body is made of welded steel components, with a combined wall thickness of 6 and 4 mm. The charging chamber is situated in the upper part of the boiler body, and the combustion chamber with ceramic lining is situated in the bottom part. The charging chamber is separated from the combustion chamber with a wall in which a ceramic nozzle is mounted with integrated openings for the secondary combustion air supply. Combustion products are discharged from the combustion chamber through a tubular heat exchanger to the boiler exhaust branch. The primary and secondary combustion air is supplied to the boiler via a forced draft blower situated in the front wall. The quantity of air can be regulated in combination of an electronic setup ( $40 \pm 100\%$ ) and mechanical throttles. The boiler shell consists of coated steel plates lined with mineral wool.

Water connection branches in the rear part of the boiler have the dimension of G2 for heating water inlet and outlet, and G3/4 for the drainage and filling. The exhaust branch with a horizontal axis is situated on the rear side of the boiler.

There is a control panel in the upper part of the boiler with an electronic indication of the water temperature in the boiler and with regulating and security elements.

Basic technical specifications:

Size	Rated capacity Wood [kW]	Water volume [l]	Max. operating temperature [°C]	Max. operating pressure [bar]	Weight [kg]
ORLIGNO 200 60 kW	60	180	95	3.0	975

The verification was conducted in the testing station of SZÚ, s.p. Brno, in December 2010 by Milan Holomek (technician).

The testing was conducted using measurement and testing equipment with valid calibration.



## II. Results of tests and evaluation

No.	Name and specification	Technical standard and regulation applied	Source materials	Results	
				Test	Evaluation
1.	Test of surface temperatures	ČSN EN 303-5:2000, Art. 4.2.7	Page 4 ÷ 5	+	
2.	Test of heat capacity, input and efficiency; Test of combustion product temperature	ČSN EN 303-5:2000, Art. 4.2, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 5.8.2	Page 6÷9	+	
		ČSN EN 303-5:2000, Annex A, Deviation A.1.1	Page 10	+	
3.	Combustion efficiency test - emissions	ČSN EN 303-5:2000, Art. 4.2.6	Page 11 ÷ 12	+	
		ČSN EN 303-5:2000 Annex A (deviations A.1.2, A.2, A.5)	A.1.2 Page 13	+	
			A. 2 Page 14	+	
			A. 5 Page 15	+	

Note:

No.:

(\*\*) Not a test.

Evaluation:

+ Requirement fulfilled.  
 - Requirement not fulfilled.  
 x Not assessed.  
 0 Not applicable



Accredited test number:

1003 Test title: **Test of surface temperatures**

Testing method:

ČSN EN 303-5:2000, Art. 5.12

Sample tested:

ORLIGNO 200 60 kW

Measuring equipment used:

See report 39-8811/3

Place of testing:	at the Engineering Test Institute	x	at the manufacturer	<input type="checkbox"/>	at the customer	<input type="checkbox"/>	other:
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**Test results:**

Requirement	Specification of requirement	Test evaluation	Note
<b>Surface temperature</b>  During the tests according to 5.12, the average temperature of the boiler door surface and the cleaning eye covers on the operators' side must not exceed the ambient temperature by more than 100 K. During the tests according to 5.12, the surface temperature of the outer side of the boiler bottom must not exceed the ambient temperature by more than 65 K. This test is not performed if the manufacturer requires that the boiler is installed on a non-combustible material base. Alternative test method: The surface temperature below the boiler (according to EN 304) at any place must not exceed 80°C.  During the tests according to 5.12, the surface temperature of the operating handles and all parts with which the operating staff will come in contact must not exceed the ambient temperature by more than:  - 35 K as regards metals and similar materials; - 45 K as regards porcelain and similar materials; - 60 K as regards plastic material and similar materials	ČSN EN 303-5 Art. 4.2.7	+	

**Measurement results:** 1. boiler: ORLIGNO 200 60 kW


Average temperatures of boiler walls, doors and covers (°C):	
Fuel type	wood
Date of testing	2009-07-20
Rel. humidity (%)	41
Bar. press. (kPa)	99.885
Ambient temperature (°C)	27.6
Front wall	82.5
Rear wall	34.0
Right wall	27.8
Left wall	27.3
Upper wall	32.0
Lower wall	63.5
Charging door	68.0
Ash-pan door	126.0
Temperatures of control elements (°C):	
Loading door handle - plastic	42
Ash pan door handle - plastic	61
Charging throttle drawbar handle - plastic	29
Exchanger cleaning lever - plastic	31

**Measurement uncertainty:** 2°C for temperatures within the range of (0 ÷ 250) °C

The above-specified extended measurement uncertainties are calculated as a factor of the measurement uncertainty and the extension coefficient,  $k=2$ , corresponding to the coverage certainty of 95% as regards standard classification. The uncertainties do not reflect the impact of sample taking and lack of homogeneity. The standard uncertainty was determined in accordance with Document EA 4/02."

**Test evaluation:** The prescribed temperature rise values have not been exceeded.

Tested by: Milan Holomek Date: 2010-12-10

Signed: 

Reviewed by: Ing. Stanislav Buchta Date: 2010-12-10

Signed: 



Accredited test number: 1004.1 Test title: **Test of heat capacity, input and efficiency**  
 1004.2 **Test of combustion product temperature**

Testing method: ČSN EN 303-5:2000, Art. 5.7 to 5.10

Sample tested: ORLIGNO 200 60 kW

Measuring equipment used: See report 39-8811/3

Place of testing:	at the Engineering Test Institute	<input checked="" type="checkbox"/>	at the manufacturer	<input type="checkbox"/>	at the customer	<input type="checkbox"/>	other:
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### Test results:

Requirement	Specification of requirement	Test evaluation	Note
<b>Requirements regarding boiler capacity</b> Fulfilment of the requirements specified below regarding the boiler capacity must be checked with the use of test fuels. The rated heat capacity and the heat output range may fluctuate depending on the fuel. The requirements regarding the boiler efficiency and emissions are divided into three categories. So that the requirements for the given category can be deemed fulfilled, all efficiency and emission limit values for the category concerned must be fulfilled.	ČSN EN 303-5 Art. 4.2	+	
<b>Boiler efficiency</b> During tests according to 5.7, 5.8 and 5.10, the boiler efficiency for the rated heat capacity must not be lower than the values specified in the formulas shown in Fig. 1.	ČSN EN 303-5 Art. 4.2.1	+	
<b>Combustion product temperature</b> In boilers operated under the rated heat capacity and at temperatures lower than 160 K above the ambient temperature, the manufacturer must provide recommendations regarding the mounting of the flue duct for adequate draught and to prevent condensation and soot depositing in the entire chimney.	ČSN EN 303-5 Art. 4.2.2	+	
<b>Draught</b> The determined values of draught, as specified in Fig. 2, are the maximum values. They also serve as the recommended values for the chimney. If the maximum draught values are exceeded, there must be a special reference to technical instruction manuals.	ČSN EN 303-5 Art. 4.2.3	+	
<b>Period of burning</b> In boilers with manual fuel charging and under the rated heat capacity, the period of burning must be declared by the manufacturer and must be at least: - 2 hours as regards biological fuels - 4 hours as regards fossil fuels In boilers with automatic fuel charging, the period of burning must be at least 6 hours.	ČSN EN 303-5 Art. 4.2.4	+	





<b>Minimum heat capacity</b> The minimum heat capacity must not be higher than 30% of the rated heat capacity. In boilers with manual fuel charging, the minimum heat output may be higher. In such a case, the manufacturer must state in the technical documentation how the generated heat will be dissipated.	ČSN EN 303-5 Art. 4.2.5	+	
<b>Determination of rated heat capacity</b> The heat capacity declared by the manufacturer must be verified by testing, with tolerance of $\pm 8\%$ . The rated heat capacity declared by the manufacturer must be achieved at least during one burning period. Otherwise, the rated heat capacity must be modified.	ČSN EN 303-5 Art. 5.8.2	+	

**Measurement results:** 1. boiler: ORLIGNO 200 60 kW: wood

**Average measured and calculated values (solid fuels):**

Period of burning: Type of boiler: Date of testing: Test conditions:	I. ORLIGNO 200 60 kW 2009-07-20 Rated capacity	II. ORLIGNO 200 60 kW 2009-07-20 Rated capacity
Type of fuel:	wood/beech/45cm	wood/beech/45cm
Rated heat capacity (specified by manufacturer) [kW]	60.0	60.0
Combustion product temperature [°C]	139.5	140.3
Fuel consumption [kg/hour]	15.38	15.17
Outlet water temperature [°C]	57.7	57.0
Outlet water temperature [°C]	78.5	77.0
Cooling water temperature [°C]	18.7	18.2
Cooling water flow rate [m <sup>3</sup> / hour]	0.806	0.804
Draught behind boiler [Pa]	27.0	28.0
Ambient temperature [°C]	27.3	27.9
Relative air humidity [%]	41.0	41.0
Barometric pressure [kPa]	99.885	99.885

**Analysis of combustion products:**

Period of burning: Type of boiler: Date of testing: Test conditions:	I. ORLIGNO 200 60 kW 2009-07-20 Rated capacity	II. ORLIGNO 200 60 kW 2009-07-20 Rated capacity
Type of fuel:	wood/beech/45cm	wood/beech/45cm
Oxygen O <sub>2</sub> [%]	6.13	5.88
Carbon dioxide CO <sub>2</sub> [%]	13.45	13.68
Carbon monoxide CO [ppm]	1139	973
Higher hydrocarbons OGC [ppm]	167	116
Nitrogen oxides NO <sub>x</sub> [ppm]	117	121

**Auxiliary combustion values (solid fuels):**

Period of burning: Type of boiler: Date of testing: Test conditions:		I. ORLIGNO 200 60 kW 2009-07-20 Rated capacity	II. ORLIGNO 200 60 kW 2009-07-20 Rated capacity
		wood/beechn/45cm	wood/beechn/45cm
Type of fuel:			
Stoichiometric oxygen volume	[m <sup>3</sup> /kg]	0.845	0.845
Stoichiometric air volume	[m <sup>3</sup> /kg]	4.025	4.025
Stoich. vol. of dry comb. products	[m <sup>3</sup> /kg]	3.934	3.934
Maximum volume of CO <sub>2</sub>	[%]	19.13	19.13
Stoichiometric air multiple	[-]	1.40	1.38
Vol. of dry comb. products, actual	[m <sup>3</sup> /kg]	5.551	5.464
Volume of H <sub>2</sub> O in the combustion air	[m <sup>3</sup> /kg]	0.085	0.087
Volume of H <sub>2</sub> O in the combustion products	[m <sup>3</sup> /kg]	0.953	0.955

**Calculated values - thermal overview**

Period of burning: Type of boiler: Date of testing: Test conditions:		I. ORLIGNO 200 60 kW 2009-07-20 Rated capacity	II. ORLIGNO 200 60 kW 2009-07-20 Rated capacity
		wood/beechn/45cm	wood/beechn/45cm
Type of fuel:			
Loss of sensible heat of comb. products (chimney) [%]		6.8	6.8
Loss of gas underburning	[%]	0.8	0.6
Loss of mechanical underburning	[%]	0.5	0.5
Loss of heat transfer into the environ.	[%]	1.8	1.8
Total loss	[%]	9.9	9.7
Efficiency – indirect method	[%]	90.1	90.3
Heat input	[kW]	63.0	62.2
<b>Heat capacity</b>	<b>[kW]</b>	<b>56.2</b>	<b>55.1</b>
Uncertainty of determining heat capacity	[kW]	1.2	1.2
<b>Efficiency – direct method</b>	<b>[%]</b>	<b>89.2</b>	<b>88.6</b>
Capacity / rated capacity	[%]	93.7	91.8

Under the rated output, the boiler efficiency regarding wood burning meets the requirements applicable to category 3 according to ČSN EN 303-5:2000, figure 1.



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## CERTIFICATE OF PRODUCT APPROVAL

HETAS hereby declares that the following products:-

Product Name	Description	Model	Certificate number
Angus Super	Hand fired log wood gasification boilers	Angus Super 18kW	HTSMCS1007/01
Angus Super		Angus Super 25kW	HTSMCS1007/02
Angus Super		Angus Super 40kW	HTSMCS1007/03
Angus Orligno 200		Angus Orligno 200 18kW	HTSMCS1007/04
Angus Orligno 200		Angus Orligno 200 25kW	HTSMCS1007/05
Angus Orligno 200		Angus Orligno 200 40kW	HTSMCS1007/06

Manufactured by:-

Manufacturer	Sole UK Distributor
EKO-VIMAR ORLANSKI Sp z o.o 48-385 Otmuchów, ul.Nyska 17b, POLAND	Eco Angus Ltd The Barn, Barley Wood Walled Garden, Long Lane, Wroughton, North Somerset BS40 5SA

Have met the requirements of the Microgeneration Certification Scheme for Biomass Products

Authorised Signatory: \_\_\_\_\_

W G Kaye (Director of Approvals and Certification)

Date: 9<sup>th</sup> September 2010

This certificate replaces certificate number HTSMCS1007/01 to HTSMCS1007/03 dated 08<sup>th</sup> July 2010, which is withdrawn.

Certificate number: HTSMCS1007/01 to HTSMCS1007/06 Issue number: 02 Issue date: 09<sup>th</sup> Sep 2010

HETAS Ltd., Orchard Business Centre, Stoke Orchard, Cheltenham, Gloucestershire GL52 7RZ



4360



## CERTIFICATE OF PRODUCT APPROVAL

HETAS hereby declares that the following products:-

Product Name	Description	Model	Certificate number
Angus Origno 500	Automatic wood pellet fired boiler	Angus Origno 500	HTSMCS1021/01

Manufactured by:-

Manufacturer	Sole UK Distributor
EKO-VIMAR ORLANSKI Sp z o.o 48-385 Otmuchów, ul.Nyska 17b, POLAND	Eco Angus Ltd The Barn, Barley Wood Walled Garden, Long Lane, Wroughton, North Somerset BS40 5SA

Have met the requirements of the Microgeneration Certification Scheme for Biomass Products

Authorised Signatory: \_\_\_\_\_

Date: 8<sup>th</sup> March 2011

W G Kaye (Director of Approvals and Certification)

Certificate number: HTSMCS1021/01

Issue number: 02

Issue date: 8<sup>th</sup> March 2011

HETAS Ltd., Orchard Business Centre, Stoke Orchard, Gloucestershire GL52 7RZ



Pullar House 35 Kinnoull Street Perth PH1 5GD

Tel: 01738 475300

Fax: 01738 475310

Email: [onlineapps@pkc.gov.uk](mailto:onlineapps@pkc.gov.uk)

Planning Department

Applications cannot be validated until all necessary documentation has been submitted and the required fee has been paid.

Thank you for completing this application form:

ONLINE REFERENCE 000044626-001

The online ref number is the unique reference for your online form only. The Planning Authority will allocate an Application Number when your form is validated. Please quote this reference if you need to contact the Planning Authority about this application.

## Type of Application

What is this application for? Please select one of the following: \*

We strongly recommend that you refer to the help text before you complete this section.

- ☒ Application for Planning Permission (including changes of use and surface mineral working)
- ☐ Application for Planning Permission in Principle
- ☐ Further Application, (including renewal of planning permission, modification, variation or removal of a planning condition etc)
- ☐ Application for Approval of Matters specified in conditions

## Description of Proposal

Please describe the proposal including any change of use: \* (Max 500 characters)

Installation of a flue forming part of a biomass heating system for the Tayside Hotel, Stanley

Is this a temporary permission? \*

☐ Yes ☒ No

If a change of use is to be included in the proposal has it already taken place?  
(Answer 'No' if there is no change of use.) \*

☐ Yes ☒ No

Have the works already been started or completed? \*

☐ No ☐ Yes - Started ☒ Yes - Completed

Please state date of completion, or if not completed, the start date (dd/mm/yyyy): \*

09/11/11

Please explain why work has taken place in advance of making this application: \*  
(Max 500 characters)

The height of the proposed flue had to be raised because of engineering issues, thereby bringing it under the control of the planning system. The applicants were only made aware of this following advice from Perth & Kinross Council officers.

## Applicant or Agent Details

Are you an applicant, or an agent? \* (An agent is an architect, consultant or someone else acting on behalf of the applicant in connection with this application)

☐ Applicant ☒ Agent

### Agent Details

Please enter Agent details

Company/Organisation:	Cockburn's Consulting
Ref. Number:	
First Name: *	Brent
Last Name: *	Quinn
Telephone Number: *	07708971120
Extension Number:	
Mobile Number:	
Fax Number:	
Email Address: *	brentquinn123@gmail.com

You must enter a Building Name or Number, or both:\*

Building Name:	
Building Number:	20A
Address 1 (Street): *	Falcon Avenue
Address 2:	
Town/City: *	Edinburgh
Country: *	UK
Postcode: *	EH10 4AJ

Is the applicant an individual or an organisation/corporate entity? \*

☒ Individual ☐ Organisation/Corporate entity

### Applicant Details

Please enter Applicant details

Title: *	Mr
Other Title:	
First Name: *	W
Last Name: *	Twaddle
Company/Organisation:	C/O Tayside Hotel
Telephone Number:	
Extension Number:	
Mobile Number:	
Fax Number:	
Email Address:	

You must enter a Building Name or Number, or both:\*

Building Name:	
Building Number:	51-53
Address 1 (Street): *	Mill Street
Address 2:	
Town/City: *	Stanley
Country: *	Perthshire
Postcode: *	PH1 4NL

## Site Address Details

Full postal address of the site (including postcode where available):

Address 1:	<input type="text" value="Tayside Hotel"/>	Address 5:	<input type="text"/>
Address 2:	<input type="text" value="51 - 53 Mill Street"/>	Town/City/Settlement:	<input type="text" value="Perth"/>
Address 3:	<input type="text" value="Stanley"/>	Post Code:	<input type="text" value="PH1 4NL"/>
Address 4:	<input type="text"/>		

Please identify/describe the location of the site or sites.

Northing	<input type="text" value="733279"/>	Easting	<input type="text" value="310875"/>
----------	-------------------------------------	---------	-------------------------------------

## Pre-Application Discussion

Have you discussed your proposal with the planning authority? \*

☒ Yes ☐ No

## Pre-Application Discussion Details

In what format was the feedback given? \*

☒ Meeting ☐ Telephone ☒ Letter ☐ Email

Please provide a description of the feedback you were given and the name of the officer who provided this feedback. If a processing agreement [note 1] is currently in place or if you are currently discussing a processing agreement with the planning authority, please provide details of this. (This will help the authority to deal with this application more efficiently.) \* (Max 500 characters)

Enforcement letter and follow up discussions between Mr Short & Mr Twaddle

Title:	<input type="text" value="Mr"/>	Other title:	<input type="text"/>
First Name:	<input type="text" value="Ray"/>	Last Name:	<input type="text" value="Short"/>
Correspondence Reference Number:	<input type="text" value="12100133flue"/>	Date (dd/mm/yyyy):	<input type="text" value="19/06/12"/>

Note 1. A processing agreement involves setting out the key stages involved in determining a planning application, identifying what information is required and from whom and setting timescales for the delivery of various stages of the process.

## Site Area

Please state the site area:

Please state the measurement type used: ☐ Hectares (ha) ☒ Square Metres (sq.m)

## Existing Use

Please describe the current or most recent use: (Max 500 characters)

Area for car parking

## Access and Parking

Are you proposing a new or altered vehicle access to or from a public road? \*

☐ Yes ☒ No

If Yes please describe and show on your drawings the position of any existing, altered or new access points, highlighting the changes you propose to make. You should also show existing footpaths and note if there will be any impact on these.

Are you proposing any changes to public paths, public rights of way or affecting any public rights of access? \*

☐ Yes ☒ No

If Yes please show on your drawings the position of any affected areas highlighting the changes you propose to make, including arrangements for continuing or alternative public access.

How many vehicle parking spaces (garaging and open parking) currently exist on the application site? \*

6

How many vehicle parking spaces (garaging and open parking) do you propose on the site (i.e. the total of existing and any new spaces or a reduced number of spaces)? \*

6

Please show on your drawings the position of existing and proposed parking spaces and identify if these are for the use of particular types of vehicles (e.g. parking for disabled people, coaches, HGV vehicles, cycle spaces).

## Water Supply and Drainage Arrangements

Will your proposal require new or altered water supply or drainage arrangements? \*

☐ Yes ☒ No

Do your proposals make provision for sustainable drainage of surface water? (e.g. SUDS arrangements) \*

☐ Yes ☒ No

Note: -

Please include details of SUDS arrangements on your plans

Selecting 'No' to the above question means that you could be in breach of Environmental legislation.

Are you proposing to connect to the public water supply network? \*

☐ Yes

☐ No, using a private water supply

☒ No connection required

If No, using a private water supply, please show on plans the supply and all works needed to provide it (on or off site).

## Assessment of Flood Risk

Is the site within an area of known risk of flooding? \*

☐ Yes ☒ No ☐ Don't Know

If the site is within an area of known risk of flooding you may need to submit a Flood Risk Assessment before your application can be determined. You may wish to contact your Planning Authority or SEPA for advice on what information may be required.

Do you think your proposal may increase the flood risk elsewhere? \*

☐ Yes ☒ No ☐ Don't Know



## Trees

Are there any trees on or adjacent to the application site? \*

☐ Yes ☒ No

If Yes, please mark on your drawings any trees, known protected trees and their canopy spread close to the proposal site and indicate if any are to be cut back or felled.

## Waste Storage and Collection

Do the plans incorporate areas to store and aid the collection of waste (including recycling)? \*

☐ Yes ☒ No

If Yes or No, please provide further details:(Max 500 characters)

N/A

## Residential Units Including Conversion

Does your proposal include new or additional houses and/or flats? \*

☐ Yes ☒ No

## All Types of Non Housing Development - Proposed New Floorspace

Does your proposal alter or create non-residential floorspace? \*

☐ Yes ☒ No

## Schedule 3 Development

Does the proposal involve a form of development listed in Schedule 3 of the Town and Country Planning (Development Management Procedure (Scotland) Regulations 2008? \*

☒ Yes ☐ No ☐ Don't Know

If yes, your proposal will additionally have to be advertised in a newspaper circulating in the area of the development. Your planning authority will do this on your behalf but will charge you a fee. Please check the planning authority's website for advice on the additional fee and add this to your planning fee.

If you are unsure whether your proposal involves a form of development listed in Schedule 3, please check the Help Text and Guidance notes before contacting your planning authority.

## Planning Service Employee/Elected Member Interest

Is the applicant, or the applicant's spouse/partner, either a member of staff within the planning service or an elected member of the planning authority? \*

☐ Yes ☒ No

## Certificates and Notices

Certificate and Notice under Regulation 15 8 – Town and Country Planning (General Development Management Procedure) (Scotland) Order 1992 (GDPO 1992) Regulations 2008

One Certificate must be completed and submitted along with this application form. This is most usually Certificate A, Form 1, Certificate B, Certificate C or Certificate E.

Are you/the applicant the sole owner of ALL the land? \*

☒ Yes ☐ No

Is any of the land part of an agricultural holding? \*

☐ Yes ☒ No

## Certificate Required

The following Land Ownership Certificate is required to complete this section of the proposal:

Certificate A

## Land Ownership Certificate

Certificate and Notice under Regulation 15 of the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008

Certificate A

I hereby certify that –

(1) - No person other than myself/the applicant was an owner (Any person who, in respect of any part of the land, is the owner or is the lessee under a lease thereof of which not less than 7 years remain unexpired.) of any part of the land to which the application relates at the beginning of the period of 21 days ending with the date of the accompanying application.

(2) - None of the land to which the application relates constitutes or forms part of an agricultural holding.

Signed: Brent Quinn

On behalf of: Mr W Twaddle

Date: 19/07/2012

☒ Please tick here to certify this Certificate. \*

## Checklist - Application for Planning Permission

Town and County Planning (Scotland) Act 1997

The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008

Please take a few moments to complete the following checklist in order to ensure that you have provided all the necessary information in support of your application. Failure to submit sufficient information with your application may result in your application being deemed invalid. The planning authority will not start processing your application until it is valid.

a) If this is a further application where there is a variation of conditions attached to a previous consent, have you provided a statement to that effect? \*

☐ Yes ☐ No ☒ Not applicable to this application

b) If this is an application for planning permission, planning permission in principle or a further application and the application is for development belonging to the categories of national or major developments, have you provided a Pre-Application Consultation Report? \*

☐ Yes ☐ No ☒ Not applicable to this application

Town and County Planning (Scotland) Act 1997

The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008

c) If this is an application for planning permission and the application relates to development belonging to the categories of national or major developments and you do not benefit from exemption under Regulation 13 of The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008, have you provided a Design and Access Statement? \*

☐ Yes ☐ No ☒ Not applicable to this application

d) If this is an application for planning permission and relates to development belonging to the category of local developments (subject to regulation 13. (2) and (3) of the Development Management Procedure (Scotland) Regulations 2008) have you provided a Design Statement? \*

☐ Yes ☐ No ☒ Not applicable to this application

e) If your application relates to installation of an antenna to be employed in an electronic communication network, have you provided an ICNIRP Declaration? \*

☐ Yes ☐ No ☒ Not applicable to this application

f) If this is an application for planning permission, planning permission in principle, an application for approval of matters specified in conditions or an application for mineral development, have you provided any other plans or drawings as necessary:

- ☒ Site Layout Plan or Block plan.
- ☒ Elevations.
- ☒ Floor plans.
- ☐ Cross sections.
- ☐ Roof plan.
- ☐ Master Plan/Framework Plan.
- ☐ Landscape plan.
- ☒ Photographs and/or photomontages.
- ☐ Other.

Provide copies of the following documents if applicable:

- |  |  |
|--|--|
| A copy of an Environmental Statement. *  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A |
| A Design Statement or Design and Access Statement. *                                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A |
| A Flood Risk Assessment. *   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A |
| A Drainage Impact Assessment (including proposals for Sustainable Drainage Systems). * | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A |
| Drainage/SUDS layout. *  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A |
| A Transport Assessment or Travel Plan. *   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A |
| Contaminated Land Assessment. *  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A |
| Habitat Survey. *  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A |
| A Processing Agreement *   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A |

Other Statements (please specify). (Max 500 characters)

## Declare - For Application to Planning Authority

I, the applicant/agent certify that this is an application to the planning authority as described in this form. The accompanying plans/drawings and additional information are provided as a part of this application .

Declaration Name: Brent Quinn  
Declaration Date: 30/07/2012  
Submission Date: 30/07/2012

## Payment Details

Online payment: 6813

Created: 30/07/2012 02:20



# PERTH AND KINROSS COUNCIL

Tayside Hotel  
c/o Cockburn's Consulting  
FAO Brent Quinn  
20A Falcon Avenue  
Edinburgh  
EH10 4AJ

Pullar House  
35 Kinnoull Street  
PERTH  
PH1 5GD

Date 1st February 2013

## TOWN AND COUNTRY PLANNING (SCOTLAND) ACT

Application Number: **12/01396/FLL**

I am directed by the Planning Authority under the Town and Country Planning (Scotland) Acts currently in force, to refuse your application registered on 1st August 2012 for permission for **Installation of a biomass boiler and flue (in retrospect) Tayside Hotel 51-53 Mill Street Stanley Perth PH1 4NL** for the reasons undernoted.

Development Quality Manager

### Reasons for Refusal

1. The installation and operational use of the flue as part of the biomass system will have a detrimental impact on nearby/neighbouring residential properties with regards to smoke/odour nuisance and is therefore contrary to Policy 71 Of the Perth Area Local Plan 1995 Incorporating Alteration No.1 Housing Land 2000 and Policy RD1 of the Proposed Local Development Plan - January 2012, which is a material consideration, where the retention and/or improvement of residential amenity is a key planning objective.

### Justification

The proposal is not in accordance with the Development Plan and there are no material reasons which justify departing from the Development Plan.

## Notes

The plans relating to this decision are listed below and are displayed on Perth and Kinross Council's website at [www.pkc.gov.uk](http://www.pkc.gov.uk) "Online Planning Applications" page

### Plan Reference

12/01396/1

12/01396/2

12/01396/3

12/01396/4

12/01396/5

**TCP/11/16(243)**

**Planning Application 12/01396/FLL – Installation of a biomass boiler and flue (in retrospect) at Tayside Hotel, 51-53 Mill Street, Stanley, PH1 4NL**

**PLANNING DECISION NOTICE** *(included in applicant's submission, see pages 231-232)*

**REPORT OF HANDLING**

**REFERENCE DOCUMENTS** *(part included in applicant's submission, see pages 213-222)*





## REPORT OF HANDLING

### DELEGATED REPORT

Ref No	12/01396/FLL
Ward No	N5- Strathtay

**PROPOSAL:** Installation of a biomass boiler and flue (in retrospect)

**LOCATION:** Tayside Hotel, 51-53 Mill Street, Stanley, PERTH, PH1 4NL.

**APPLICANT:** Tayside Hotel

**RECOMMENDATION:** REFUSE THE APPLICATION

**SITE INSPECTION:** 9 August 2012



## OFFICER'S REPORT:

Sections 25 and 37(2) of the Town and Country Planning (Scotland) Act 1997 as amended by Planning Etc (Scotland) Act 2006 require that planning decisions be made in accordance with the development plan unless material considerations indicate otherwise. The adopted development plan applicable to this area comprises the TAYplan Strategic Development Plan 2012 and the Perth Area Local Plan 1995 Incorporating Alteration No.1 Housing Land 2000. The Local Development Plan - Proposed January 2012 is viewed as a material consideration.

### Site description:-

The application site Tayside Hotel, 51-53 Mill Street, Stanley is an east facing 3 storey, accommodation in roof space, 12 bedroom 3\* gothic late Victorian hotel (approximate foot print 700sqm within approximately 1,860sqm). External finishes: slate; sandstone; uPVC windows. Half a dozen sloping roof outbuildings are located in the car park to the rear of the hotel.

### The proposal is:-

The installation of the flue as part of the biomass system, the subject of this planning application, is made from galvanised steel and protrudes from the outbuilding to the rear of the hotel.

This application is retrospective.

The applicant has fitted an Orligno 200 60kw wood gasification biomass boiler.

### Assessment

The determining issues in this case are whether:-

- The proposal complies with Development Plan policy;
- There are any other material considerations.

There are no issues of strategic relevance raised in this application.

### Visual Impact

The flue is reasonably prominent but given its distance from the nearest dwelling house (approximately 20m) and its distance from the public road (approximately 35m) I do not consider it to have a significant visual impact. It will also be partially hidden by the taller neighbouring hotel building to the south south east.

### Noise

I do not consider this proposal to have any detrimental impact on residential amenity in terms of noise but if approved intend to include a condition to control noise from the plant.

### Air Quality

Environmental Health has been consulted in regard to air quality and has confirmed that the biomass has the potential to increase ambient air concentrations of nitrogen dioxide and particulate matter. Further information was requested from the applicant

to allow them to calculate whether the height of the chimney/stack attached to the biomass appliance is sufficiently tall to disperse the pollutants emitted adequately using the Technical Guidance TG (09) nomographs. Information supplied by the applicant indicated that the flue has a negative stack height. Therefore an air quality assessment was requested in a memorandum from Environmental Health, dated 27 September 2012. The aforementioned memorandum also made reference to the nuisance from smoke/odour from the boiler affecting neighbouring residents and therefore recommended that the report should include mitigation measures to abate the nuisance.

The Air Quality Report addressed air quality however there is no reference to nuisance and no attempt has been made to demonstrate nuisance through modelling of odour emission rates.

Based on the evidence presented on the grounds of local air quality Environmental Health agree that objectives for PM10 and NO2 will not be breached and therefore have no objections to the application on the grounds of local air quality.

#### Nuisance from Odour

No part of the report addressed the nuisance from smoke odour and although it is stated that it is only steam coming from the flue and the emissions for NO2 and PM10 do not breach objective limits, there can still be nuisance conditions such as smoke odour. Environmental Health felt that the report failed to address the nuisance odour issue, raised in previous memorandums.

It is Environmental Health's contention that the operation of the biomass boiler and specifically the flue height and location will still cause nuisance conditions to local residents; therefore they cannot support the planning application due to the loss of residential amenity.

#### Conclusion

In conclusion, the application must be determined in accordance with the adopted Development Plan unless material considerations indicate otherwise. In this respect, it is clear that the proposal does not comply with the adopted Perth Area Local Plan 1995 Incorporating Alteration No.1 Housing Land 2000 policy 71 and the proposed local plan Perth & Kinross Council Local Development Plan - Proposed Plan January 2012, which is a material consideration. I have taken account of material considerations and find none that would justify overriding the adopted Development Plan. On that basis the application is recommend for refusal as the nuisance from odour will adversely affect neighbouring residential amenity.

### **DEVELOPMENT PLAN**

#### TAYplan Strategic Development Plan 2012

The strategic plan has set down three key principles, which it seeks to achieve through targeted objectives:

Ensuring effective resource management and promoting an accessible, connected and networked region;  
Supporting sustainable economic development and improving overall regional image and distinctiveness;  
Enhancing the quality of place through better quality outcomes.

No relevant strategic policy in this case.

Perth Area Local Plan 1995 Incorporating Alteration No.1 Housing Land 2000

Villages/Background Policy

POLICY 71: Inset Maps 1 - 40 indicate village areas and small settlements where residential amenity and village character will be retained and, if possible, improved. Generally encouragement will be given to:-

Proposals which will improve the character and environment of the village.

Perth & Kinross Council Local Development Plan - Proposed Plan January 2012

Members will be aware that on the 30 January 2012 the Proposed Plan was Published. The adopted Local Plan will eventually be replaced by the Proposed Local Development Plan. The Council's Development Plan Scheme sets out the timescale and stages leading up to adoption. Currently undergoing a period of representation, the Proposed Local Development Plan may be modified and will be subject to examination prior to adoption. This means that it is not expected that the Council will be in a position to adopt the Local Development Plan before December 2014. It is therefore a material consideration in the determination of this application.

Under the LDP the site is located within the defined settlement boundary for Stanley.

Policy RD1: Residential Areas

The Plan identifies areas of residential and compatible uses where existing residential amenity will be protected and, where possible, improved. Small areas of private and public open space will be retained where they are of recreational or amenity value. Changes away from ancillary uses such as employment land, local shops and community facilities will be resisted unless there is demonstrable market evidence that the existing use is no longer viable.

Generally encouragement will be given to proposals which fall into one or more of the following categories of development and which are compatible with the amenity and character of the area:

- (a) Infill residential development of a similar density to its environs.
- (b) Improvements to shopping facilities where it can be shown that they would serve local needs of the area.
- (c) Proposals which will improve the character and environment of the area or village.
- (d) Business, home working, tourism or leisure activities.
- (e) Proposals for improvements to community and educational facilities.

## **SITE HISTORY**

02/01033/FUL Erection of conservatory at 3 September 2002 Application Refused

02/02061/FUL Erection of a conservatory at 25 March 2003 Application Permitted

87/01054/FUL EXTENSION AT 13 August 1987 Application Permitted

## CONSULTATIONS/COMMENTS

Scottish Water No objections.

Environmental Health Objects.

**TARGET DATE:** 1 October 2012

## REPRESENTATIONS RECEIVED:

Number Received: 5

### Summary of issues raised by objectors:

- Smoke;
- Obnoxious odour;
- Pollution.

### Response to issues raised by objectors:

- Dealt with in report;
- Dealt with in report;
- Dealt with in report.

### Additional Statements Received:

Environment Statement	Not required
Screening Opinion	Not required
Environmental Impact Assessment	Not required
Appropriate Assessment	Not required
Design Statement / Design and Access Statement	None
Report on Impact or Potential Impact	Air Quality Assessment submitted 13 <sup>th</sup> December 2012

**Legal Agreement Required:** N/A

**Direction by Scottish Ministers** N/A

### Reasons:-

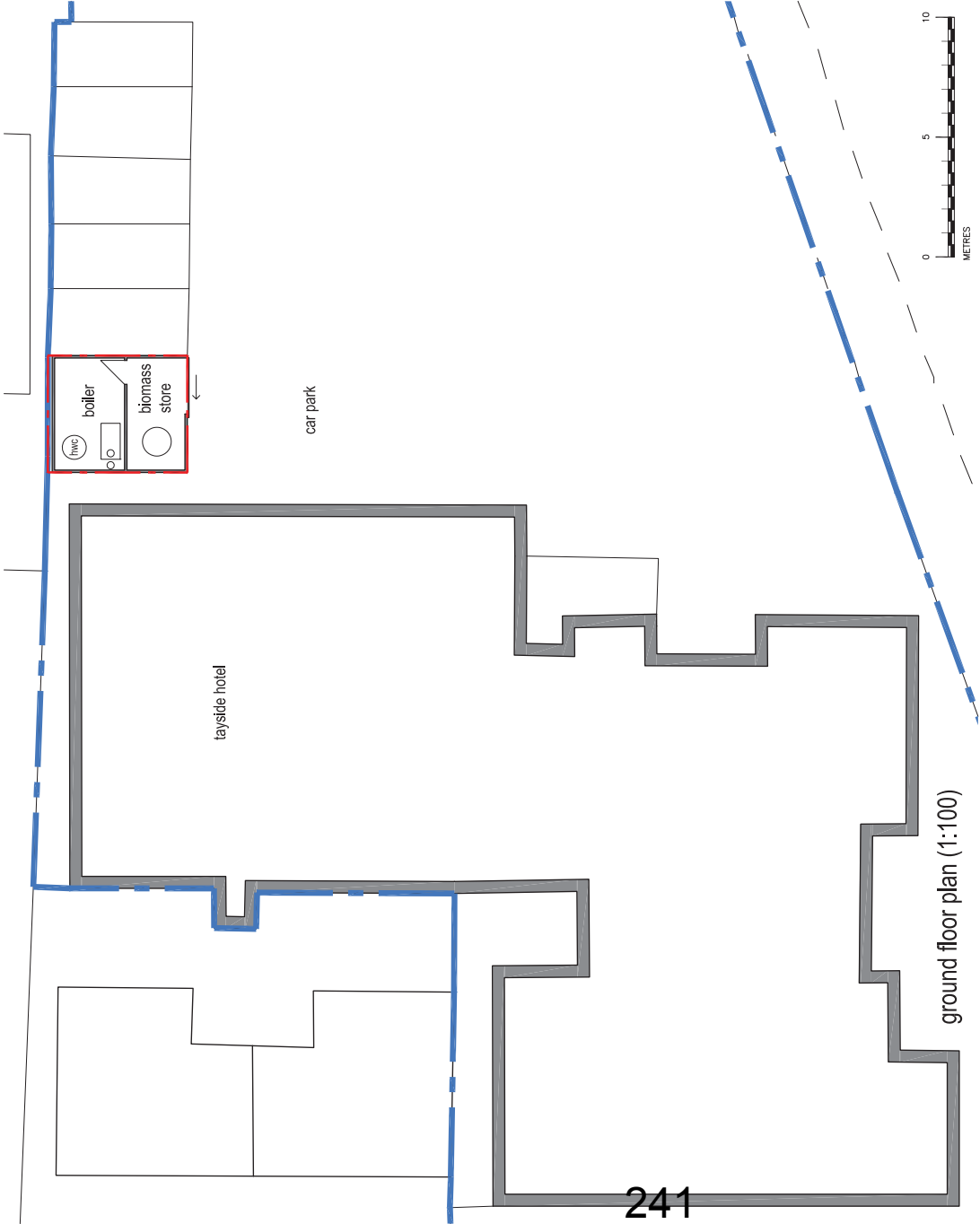
- 1 The installation and operational use of the flue as part of the biomass system will have a detrimental impact on nearby/neighbouring residential properties with regards to smoke/odour nuisance and is therefore contrary to Policy 71 Of the Perth Area Local Plan 1995 *Incorporating Alteration No.1* Housing Land 2000 and Policy RD1 of the Proposed Local Development Plan - January 2012, which is a material consideration, where the retention and/or improvement of residential amenity is a key planning objective.

**Justification**

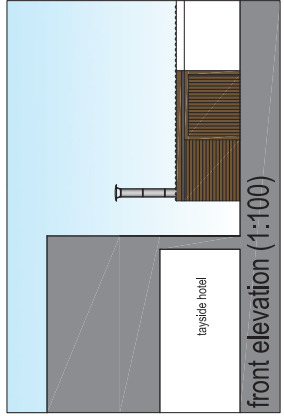
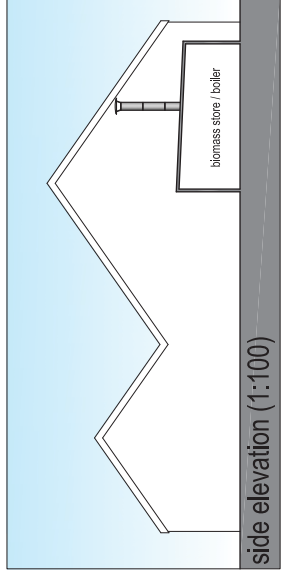
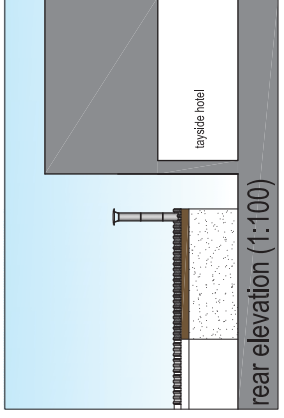
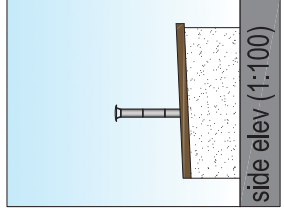
The proposal is not in accordance with the Development Plan and there are no material reasons which justify departing from the Development Plan.



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A. ALERT THE BOUNDARY LINE		PLANNING		JAN '12
status	drawing	12037 / P01 A	scale AS SHOWN (A1)	
project		TAYSIDE HOTEL 51-53 MILL STREET STANLEY PERTH	ref. 50	
title	BOILER & BIOMASS STORE PLAN, ELEVATIONS AND SITE PLAN			
		slorch wood architects		
contact	The Station Master's Office, Dunrobin Station South Queensland, E509 9AP Tel: 013 319 1280 Fax: 0131 319 1239 email: info@slorchwoodarchitects.com			







# SUPPORTING STATEMENT

TAYSIDE HOTEL, 51-53 MILL STREET, STANLEY, PERTHSHIRE

---

PLANNING APPLICATION FOR INSTALLATION OF A FLUE  
FORMING PART OF A BIOMASS HEATING SYSTEM FOR THE  
TAYSIDE HOTEL, STANLEY

Prepared by:  
Brent Quinn MA(Hons) MRTPI PRINCE2  
Cockburn's Consultants  
July 2012



## CONTENTS

SECTION 1: INTRODUCTION AND CONTEXT .....	2
SECTION 2: SITE DESCRIPTION/PROPOSAL .....	3
SECTION 3: PLANNING POLICY .....	5
SECTION 4: DISCUSSION.....	7
SECTION 5: CONCLUSIONS.....	10

## SECTION 1: INTRODUCTION AND CONTEXT

### Background

Cockburn's Consultants has been commissioned by William Twaddle of the Tayside Hotel, to submit a planning application in respect of a flue related to a biomass boiler at the Tayside Hotel, Stanley, Perthshire.

This is a retrospective planning application. It is important to explain the reasons that this has arisen. Firstly, the boiler was installed in late 2011 for two main reasons – 1) to combat rising fuel bills for the previous oil based system and 2) in the interests of sustainability. When it was first installed, the flue for the boiler was only basically a nub (less than 1m in height) protruding from the boiler and was not of a height or scale to fall under planning control. However, earlier in 2012, following discussions with the Council's Environmental Health team, the flue height had to be increased to 2.5m (from ground level) to sufficiently disperse the gases being emitted.

My clients were only made aware that planning permission was required following a visit from the Council's Planning Enforcement Officer. As they are responsible operators, they then immediately took the proper course of action and engaged our services and a planning application has been duly submitted.

### Report Structure

Following this introduction, this report comprises:

- Section 2: Site Description/Proposal;
- Section 3: Planning Policy;
- Section 4: Discussion; and
- Section 5: Conclusions;

It is respectfully requested that Perth & Kinross Council's Development Management team approve this application.

## SECTION 2: SITE DESCRIPTION/PROPOSAL

The property to which this proposal relates is the Tayside Hotel, on 51-53 Mill Street, Stanely, Perthshire. It currently operates as a successful 3\* hotel which is very much an integral part of the village community. The main building is a three/two and a half storey property comprises a 12 bedroom hotel and built predominately of stone in a gothic Victorian style, built in 1898. The operators had previously used oil for their heating purposes, but have instead moved towards the biomass boiler as installed, in the interests of costs and sustainability. In terms of this latter point, the hotel has earned a Silver award from VisitScotland in recognition of their environmental credentials.

Stanley is a designated village, as defined in the Perth Area Local Plan (1996). The overall character of the area is residential, with residential properties abounding the site on all sides.

The boiler house is located within an existing external outbuilding, within the confines of the car park, to the rear of the main building. The surface treatment for the car park is stone chips and the outbuilding that is approximately 1m in height, has a depth of around 1.2m and extends along the entire western boundary of the property. The flue that is the subject of this planning application is made from galvanised stainless steel and it protrudes approximately 2.5 metres from ground level, some 1.5 metres above the roof height of the outbuilding.



A picture of the site looking from within the car park is illustrated in Figure 1, below:

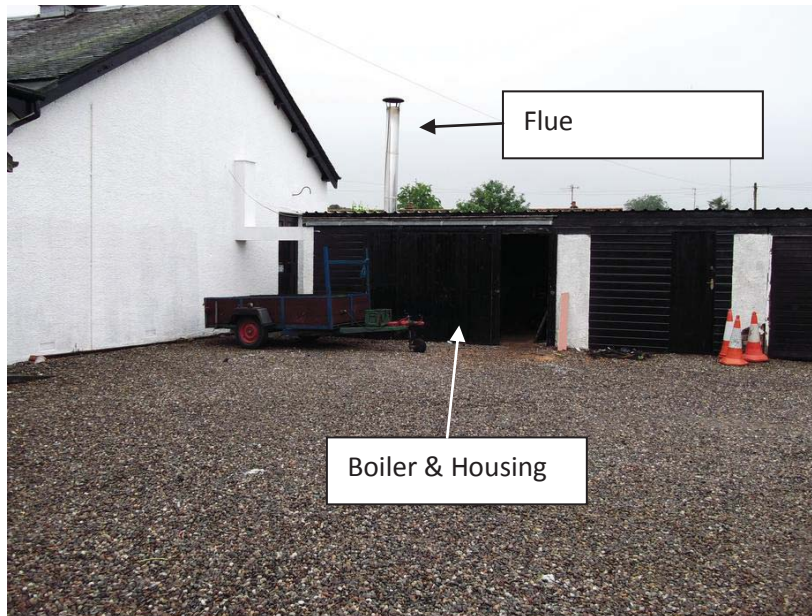


Figure 1: Picture of site, within existing car park.

A further picture showing the protruding flue from an adjacent private garden is illustrated in Figure 2, below:

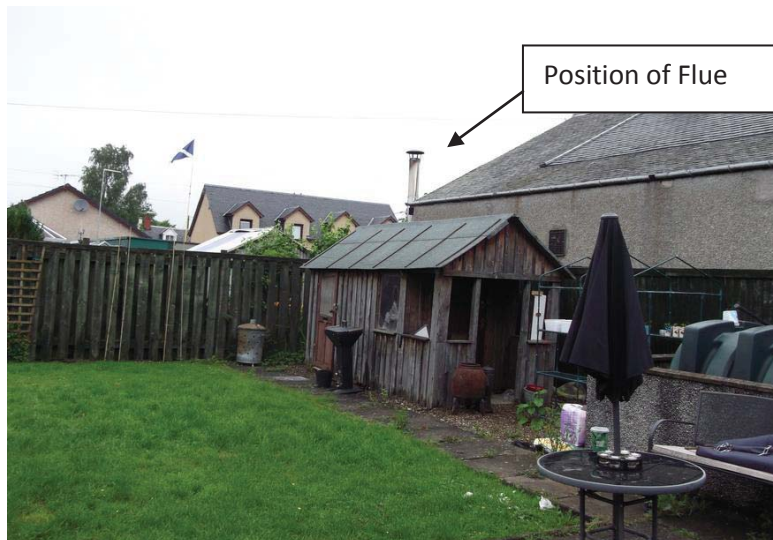


Figure 2: Picture of site, from garden of adjacent property

## SECTION 3: PLANNING POLICY

Sections 25 and 37(2) of the Town and Country Planning (Scotland) Act 1997 as amended by Planning Etc (Scotland) Act 2006 require that planning decisions be made in accordance with the development plan unless material considerations indicate otherwise. The determining issues in this case are whether: - the proposal complies with development plan policy; or if there are any other material considerations which justify a departure from policy.

### Policy

In this regard, whilst there are general policy provisions throughout the Strategic Development Plan - TAYplan 2012, the most relevant policy of the Perth Area Local Plan (PALP) in this instance is Policy 41.

The overall policy context is outlined below:

### NATIONAL GUIDANCE

#### Scottish Planning Policy 2010

This SPP is a statement of Scottish Government policy on land use planning and contains:

- the Scottish Government's view of the purpose of planning,
- the core principles for the operation of the system and the objectives for key parts of the system,
- statutory guidance on sustainable development and planning under Section 3E of the Planning etc. (Scotland) Act 2006,
- concise subject planning policies, including the implications for development planning and development management, and
- the Scottish Government's expectations of the intended outcomes of the planning system.

## DEVELOPMENT PLAN

### Perth and Kinross Structure Plan 2003

There are no relevant strategic planning policies

### Perth Area Local Plan 1995

In para. 1.3, the Written Statement identifies the purpose of the plan and states various criteria on how it should function. In terms of this planning application, the following criterion is particularly appropriate:

- To apply principles of sustainable development and anticipate a future with increasing conservation of natural resources.

### Policy 41 Perth Area general residential

Proposals Map B identifies areas of residential and compatible uses where existing residential amenity will be retained and where possible improved. Where sites in other uses become available for development, housing will generally be the most obvious alternative use. Some scope may exist for infill development, but only where this will not significantly affect the density, character or amenity of the area concerned. Small areas of private and public open space will be retained where they are of recreational or amenity value to their surroundings. Change of use to hotel, boarding and guest house use will be permitted normally only on the main radial routes in the city.

## OTHER POLICIES

None

## SECTION 4: DISCUSSION

This detailed planning application seeks planning permission for the flue that forms part of a biomass boiler system serving the Tayside Hotel. For the avoidance of any doubt the boiler itself and all other associated infrastructure outwith the flue does not require planning permission.

### Visual Impact

The flue protrudes some 2.5 metres from ground level and visually is only marginally taller than the average clothes pole in a normal domestic garden setting. The proportions of the proposal are therefore considered to be sympathetic to the context and the existing building. The flue is minimal in both size and projection.

Overall, the proposals have sympathetic regard to the scale and form of surrounding development and that it does have an appropriate landscape fit.

### Air Quality

It is considered that the flue is now of a sufficient height to disperse the emitted gases sufficiently.

It is anticipated that the Council's Environmental Health Officer would be consulted on the application due to the power output of the boiler as proposed. However, this should not result in any negative consultation response, primarily because this department have already been involved in the proposal and it was on account of their recommendations that the height of the flue has been increased. Further, the technology and efficiency of the system are such that it fully conforms to all known relevant standards.

### Noise/Residential Amenity

It is understood that the reason that the Planning Enforcement Officer became involved in this case arose due to a complaint regarding smoke emissions from a neighbour. However, my clients have discussed this with several neighbours in the area with the feedback that there have been no adverse impact whatsoever.

Notwithstanding this, it is overall considered that this proposal will not result in any detrimental impact on residential amenity. It may however be appropriate to include a condition to control noise from the flue/plant.

Therefore, with the above considerations taken into account, it is considered that the proposal adequately complies with the above-mentioned local plan policies, the contents of which are listed in Section 3, above. There are no other material considerations that would justify over-riding the adopted development plan and refusing the application.

Overall, it is considered that the application should be approved (depending on any potential representation(s) or Member call-in) under delegated powers.

### Proposed Conditions

The following standard condition is considered appropriate in this case:

- 1 The proposed development must be carried out in accordance with the approved drawings and documents, unless otherwise provided for by conditions imposed on the planning consent.
- 2 All plant equipment associated with the operation of the biomass boiler shall be so enclosed, attenuated and /or maintained in accordance with the manufacturer's instructions such that noise therefrom shall not exceed Noise rating 35 between 0700 and 2300 hours daily, or Noise Rating 20 between 2300 and 0700 hours daily, within any neighbouring residential premises, with all windows slightly open, when measured and /or calculated and plotted on a rating curve chart.

## Reasons

1. To ensure that the development is carried out in accordance with the plans approved.
2. In order to safeguard the residential amenity of the area.

## SECTION 5: CONCLUSIONS

To summarise:

- My clients did not realise that planning permission was required for this development but immediately following advice from the Council's Planning Enforcement Officer, they have taken the correct steps and this application has duly been made in a timeous fashion.
- The proposal complies with the Development Plan.
- The height of the boiler is minimal and has no adverse impacts in terms of visual impact, air quality or noise/residential amenity.

The proposal is considered to comply with the adopted Perth Area Local Plan and Perth and Kinross Structure Plan. Taking account of material considerations, there are none that would justify overriding the adopted Development Plan.

Taking account of the foregoing, the application should be recommended for approval subject to conditions.



# Wood gasification boiler **ORLIGNO 200**



ISO 9001



ISO 14001

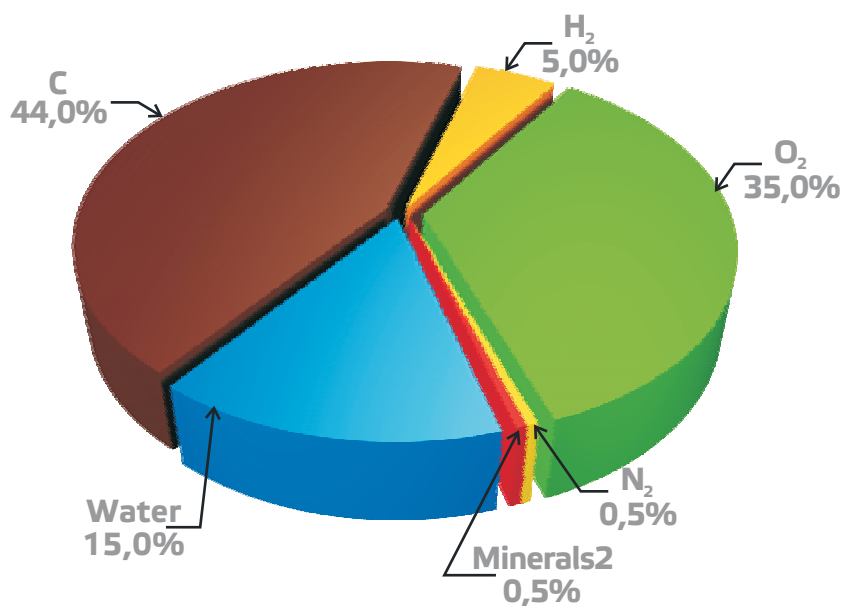
Zgodność z normą EN 303-5



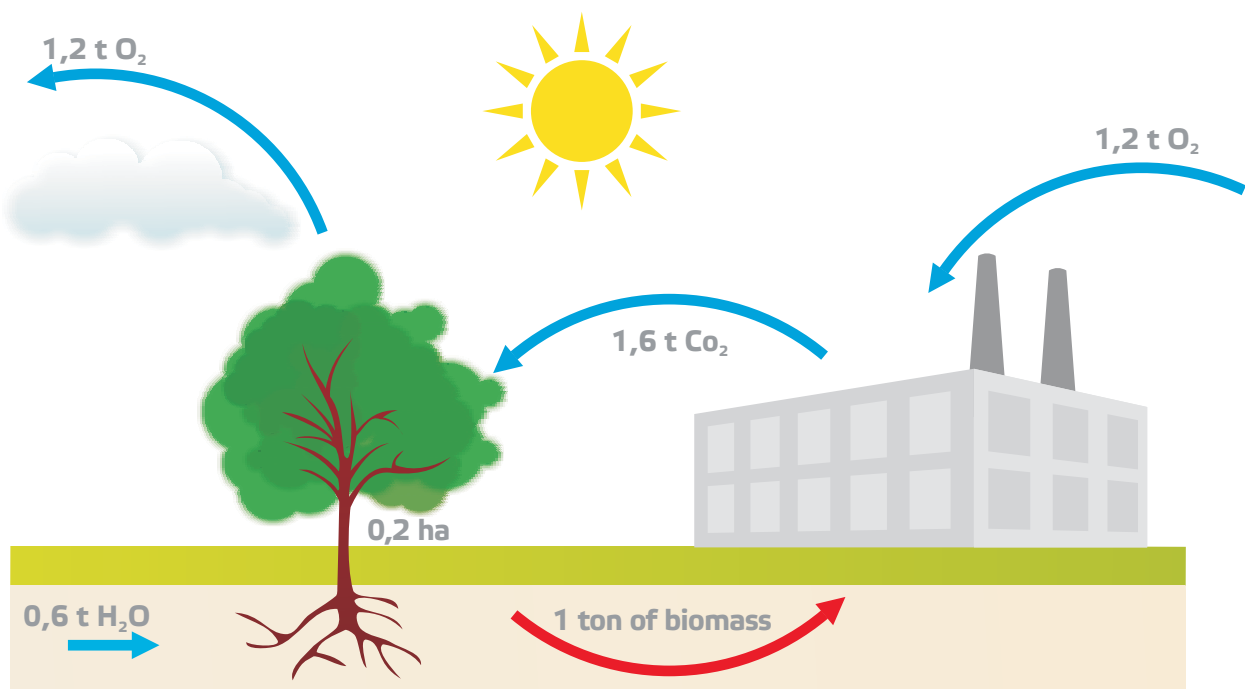
## Wood as fuel

Wood is a renewable fuel, just like the sun, tidal energy or the wind. These are energy sources which cannot be exhausted. Unlike other energy sources, wood is a fuel which can be accumulated and stored without any energy loss. Storing lowers the humidity of the wood whilst simultaneously raising its fuel value (the amount of energy which can be used during combustion). Wood is also the only fuel whose carbon dioxide (CO<sub>2</sub>) balance is zero, meaning that while vegetating through photosynthesis process it absorbs the same amount of carbon dioxide as it emits while combusting.

### Chemical contents of wood with 15% humidity



### CO<sub>2</sub> circulation graph



# Wood gasification as an economic source of heating

Wood gasification is a thermal decomposition of wood with a significant air (oxygen) deficit which results in the creation of combustible gases (wood gases) and ash.

Modern wood gasification boilers use the energy from the wood three times more effectively than appliances with a traditional hearth and their emissions are similar to gas boilers.

Wood gasification process in central heating boilers can be divided into four main phases:

1. Drying and de-gassing wood at a temperature of 450°C.
2. Combustion of the mixture of wood gas and secondary air at a temperature of 560°C
3. Burning up the flame and heat emission at a temperature of 1200°C
4. Fumes of a temperature of 160°C are emitted through the chimney flue.

## PHASE FOUR

Fumes of a temperature of 160°C are emitted through the chimney flue

## PHASE ONE

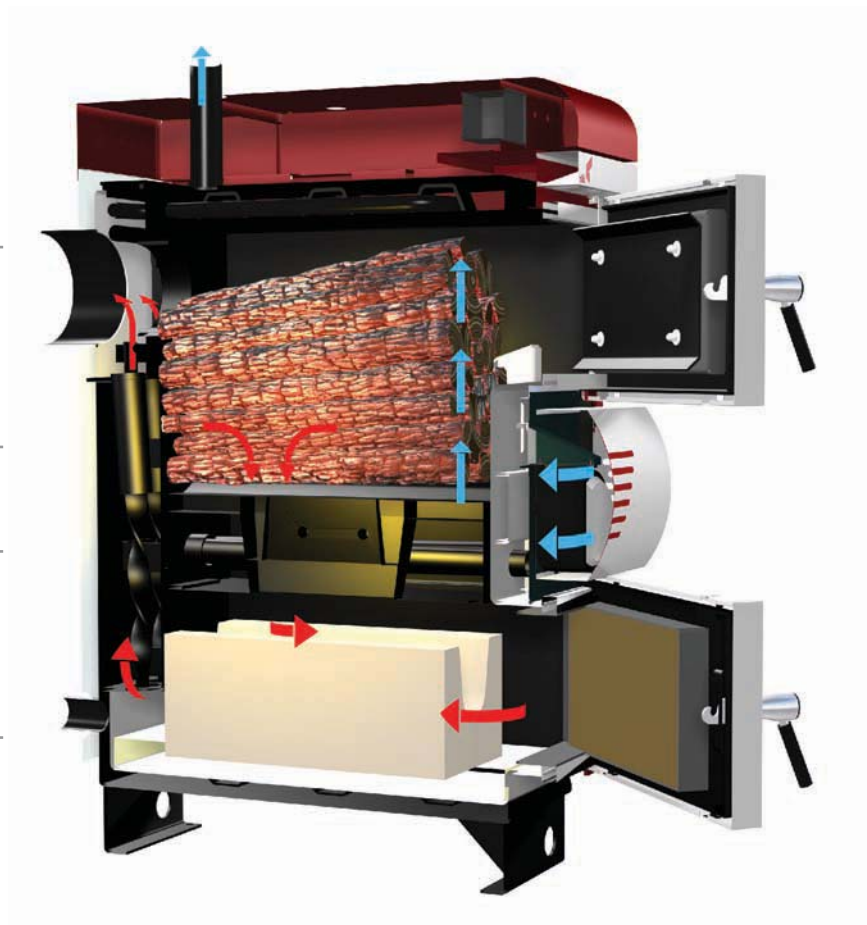
Drying and de-gassing wood at a temperature of 450°C

## PHASE TWO

Combustion of the mixture of wood gas and secondary air at a temperature of 560°C

## PHASE THREE

Burning up the flame and heat emission at a temperature of 1200°C



# Wood as fuel for wood gasification boilers

During the proper wood combustion (gasification process) the exhaust gases and ash created do not contain substances which are harmful to the natural environment, moreover the amount of created ash constitutes 1% of inputted material.

Humidity of the wood is a very important factor in the process of combusting it. The less water the wood contains, the higher its fuel value. In case of wood with 20% humidity, about 30-40% of the general amount of wood needed for one heating season can be saved.

It is recommended to cut the trees down during winter period when the sap no longer circulates within them. After felling, the wood needs to be cut into logs about 35-45 cm long and divided into halves or quarters as soon as possible. The suitably prepared wood should be stored for the period of 18-24 months in a ventilated room and fairly sheltered place. Oak is an exception as due to its high density and the content of tannin it requires storing outside and exposure to rain for 12 months, and then needs drying under cover for 2-3 years. After 2 years tannin, volatile ingredients of resin, turpentine, etc will be removed from the wood and the humidity will reach 15-20%. It is the correct level of wood drying.

It is recommended to use wood that has a 20% maximum moisture content. Hardwoods are used to promote longer burns in the Winter months whilst softwoods can be used for batch burning or creating an ember layer when starting a fire. The softwoods can also be used on its own or as a mix with hardwoods when the boiler is running constantly but it is important that temperatures of 80°C to 90°C are set on the control panel.

Wood humidity		
The state of the wood	Humidity	Fuel value
After felling	50-60%	2,0 kWh/kg = 7,2 MJ/kg
After a year of seasoning	25-35%	3,4 kWh/kg = 12,2 MJ/kg
Stored for a few years	15-25%	4,0 kWh/kg = 14,4 MJ/kg

Comparison of fuels regarding their fuel value	
Fuel	Fuel value (MJ/kg)
Light fuel oil	42,0
Earth gas GZ-50	37,0
Coal	31,0
Coke	28,5
Brown coal	15,0
Dry wood	15,0

Comparison of some types of trees regarding their density		
Type of tree	Humidity	Fuel value
Coniferous		
Pine	700	480
Larch	760	600
Spruce	740	430
Fir	1000	450
Deciduous		
Oak	1080	710
Elm	950	680
Ash	920	750
Beech	990	730
Hornbeam	1080	830
Alder	690	530
Birch	650	650

# Clean solution - ORLIGNO 200

ORLIGNO 200 boilers create a new pathway in wood gasification boilers technology. Unique design as well as a range of constructional solutions benefits the comfort of use and customer satisfaction. Technical parameters resulting from wood combustion process meet the most rigorous European norms and provide nearly twice as much heat as traditional boilers or fireplaces. The appliances can work in open as well as pressurized systems in accordance with current regulations.

ORLIGNO 200 boilers are designed to heat a variety of places. They are most commonly used in detached houses, drying rooms, production halls and workshops. Available types are as follows: 18 kW, 25 kW, 40 kW, 60 kW, 80 kW.

The ORLIGNO 200 boiler can combust wood of various granulation from sawdust to blocks. Shavings and other small pieces should be burnt together with blocks.



## ORLIGNO 200 technical data

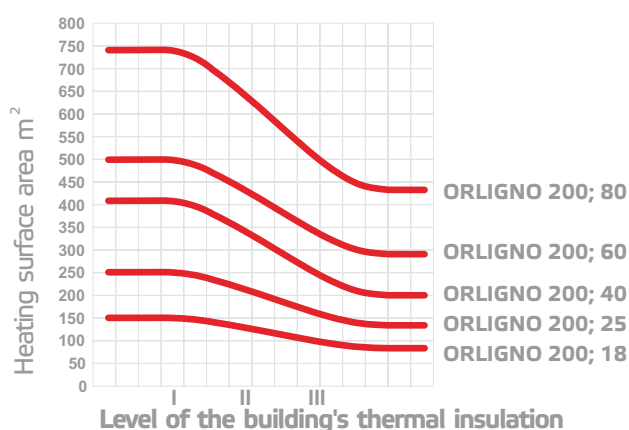
Boiler type	Measured in	18 kW	25 kW	40 kW	60 kW	80 kW
Power range	kW	7÷18	10÷25	16÷40	24÷60	32÷80
Efficiency	%	91	91	91	91	91
Weight*	kg	546	546	634	1037	1242
Loading chamber (gasification) capacity	dm <sup>3</sup>	120	120	185	310	465
Burning period	hrs	Up to 12				
Chimney flue diameter	mm	200	200	200	210	210
Length of wooden blocks	cm	50	50	50	75	100
Recommended wood humidity	%	15÷25				

## ORLIGNO 200 size

Boiler type	Measured in	18 kW	25 kW	40 kW	60 kW	80 kW
Height	A - mm	1315	1315	1575	1555	1555
Width	B - mm	670	670	670	810	810
Depth	C - mm	1060	1060	1040	1360	1720



## Choosing the right boiler for the surface:



How do I know which boiler is suitable for me:

- ☐ An installation designer will estimate how much heat will be needed in the building.
- ☐ The result needs to be increased by 20% (so called boiler over-sizing).
- ☐ You can use the graph enclosed.

### Caution !

The graph is for information only and ORLANSKI cannot be held liable if a boiler with unsuitable power output is selected.

# Clean solution - ORLIGNO 200

## Boiler advantages

- ❑ Efficiency 91%
- ❑ 5-year warranty for boiler tightness
- ❑ Low cost maintenance
- ❑ User-friendly
- ❑ Small amount of ash residue
- ❑ Large loading capacity
- ❑ Length of wooden blocks 50 cm (18, 25, 40 kW), 75 cm (60 kW), 100 cm (80 kW)
- ❑ Up to 12 hours continuous operation
- ❑ Types available 18-80 kW
- ❑ Electronic regulator with an option to fit remote control system
- ❑ Made of the best quality 8mm boiler steel
- ❑ Environmentally friendly; boiler in the 3<sup>rd</sup> emission class according to PN-303-5
- ❑ Suitable to operate in a pressurized systems





# The best materials, the best quality

## - ORLIGNO 200

**Boiler body** - the boiler's inner coat is made of 8mm thick sheet metal elements which have been welded together. The outer coat is made of 4mm thick constructional steel sheet metal. Ports are made of steel pipes.

**Heat exchanger** - blazers are made of 4 mm thick boiler pipe whose diameter is 57 mm.

**Insulation and outer casing** - 20 mm thick insulation materials are protected with 0.8 mm thick steel sheet metal varnished in a powder way.

**Burner nozzle** - ceramic element is made of heatresistant material whose operating temperature is 1350°C.

**Chimney flap** - made of high quality constructional sheetmetal.

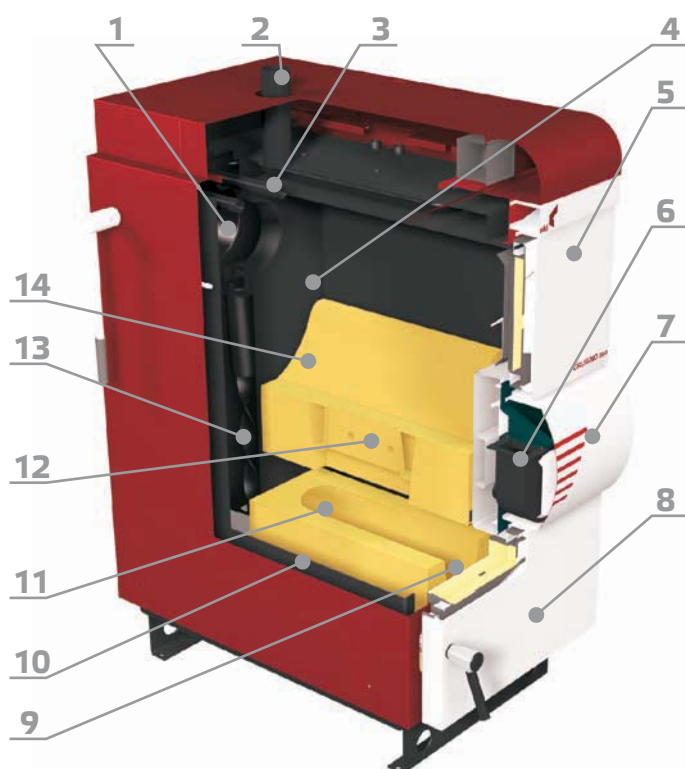
**Fan** - situated at the front of the boiler, fitted with 50Welectric engine.

**Boiler controller** - llocated under the upper panel cover; enables the stable operation of the appliance.

**Chimney flue** - made of 4mm thick steel pipe.

**Ashtray** - the combustion chamber steel bottom is fitted with ceramic moulder (operating temperature 1800°C) and additionally laid with a layer of glow-concrete which ensures protection from a high temperature.

**Boiler door** - made of high quality constructional steel, insulated with an insulating material and filled with glow-concrete from the inside (lower door). A fibreglass rope covered with a layer of silicone ensures the door hermeticity (upper door).



1. Chimney flap
2. Heating water exit
3. Cooling coil
4. Loading (gasification) chamber
5. Upper door
6. Fan
7. Fan cover
8. Lower door
9. Ashtray
10. Boiler insulation
11. Combustion chamber
12. Ceramic nozzle
13. Secondary air flow
14. Ceramic moulders

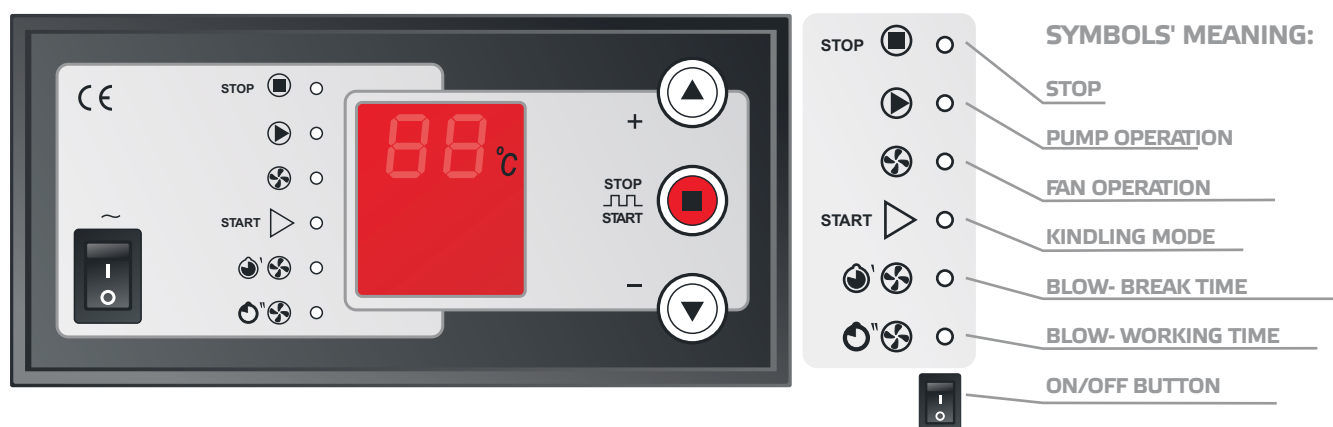


# Total control - ORLIGNO 200

Microprocessor temperature regulator Ekoster 2 is designed to control the heating process and the activation of circulation pump in the central heating installation.

The regulator fulfils the following tasks:

- ❑ Upholding the pre-set boiler temperature through heating control
- ❑ Smooth start of the fan which eliminates wood gas detonations
- ❑ Adjustable fan power (service mode)
- ❑ Programmable boiler blow
- ❑ Automatic control turn-off after boiler extinction
- ❑ Blocking fan operation when stoking to the boiler
- ❑ Central heating circulation pump control
- ❑ "COMFORT SYSTEM"- a system that prevents the pump blockages when the boiler is not in operation
- ❑ Protection from boiler freezing and overheating
- ❑ Signalling when the boiler temperature sensor is damaged
- ❑ Modulated intensity of the display, it increases when the settings are being changed
- ❑ Compatible with Ekoster Control remote control system



## EkosterControl - control panel

The panel is designed to co-operate with EKOSTER microprocessor temperature regulator. EKOSTER Control enables the constant temperature reading of the central heating boiler, change of boiler temperature setting as well as activation and de-activation of control by regular communication with Ekoster regulator. The innovative built-in alarm system informs the user with a piercing sound if the threshold of 97°C has been overstepped, if the boiler temperature has dropped below 0°C, or if the sensor is damaged.



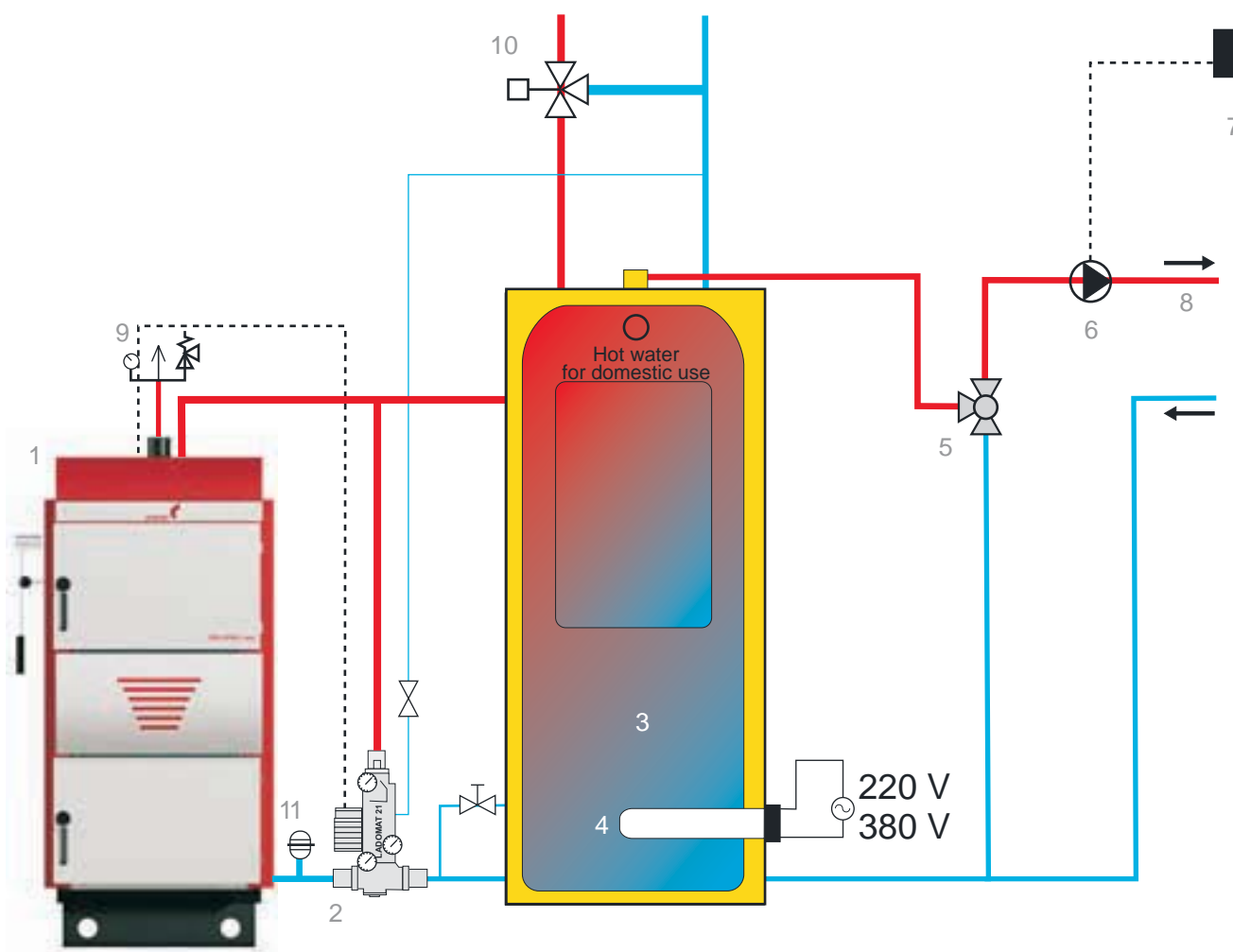
### Technical data

Range of temperature displayed	-9°C - + 99°C
Range of temperature setting	+60°C - + 97°C

# Installation diagram - ORLIGNO 200

Connecting ORLIGNO 200 boiler with a accumulation tank.

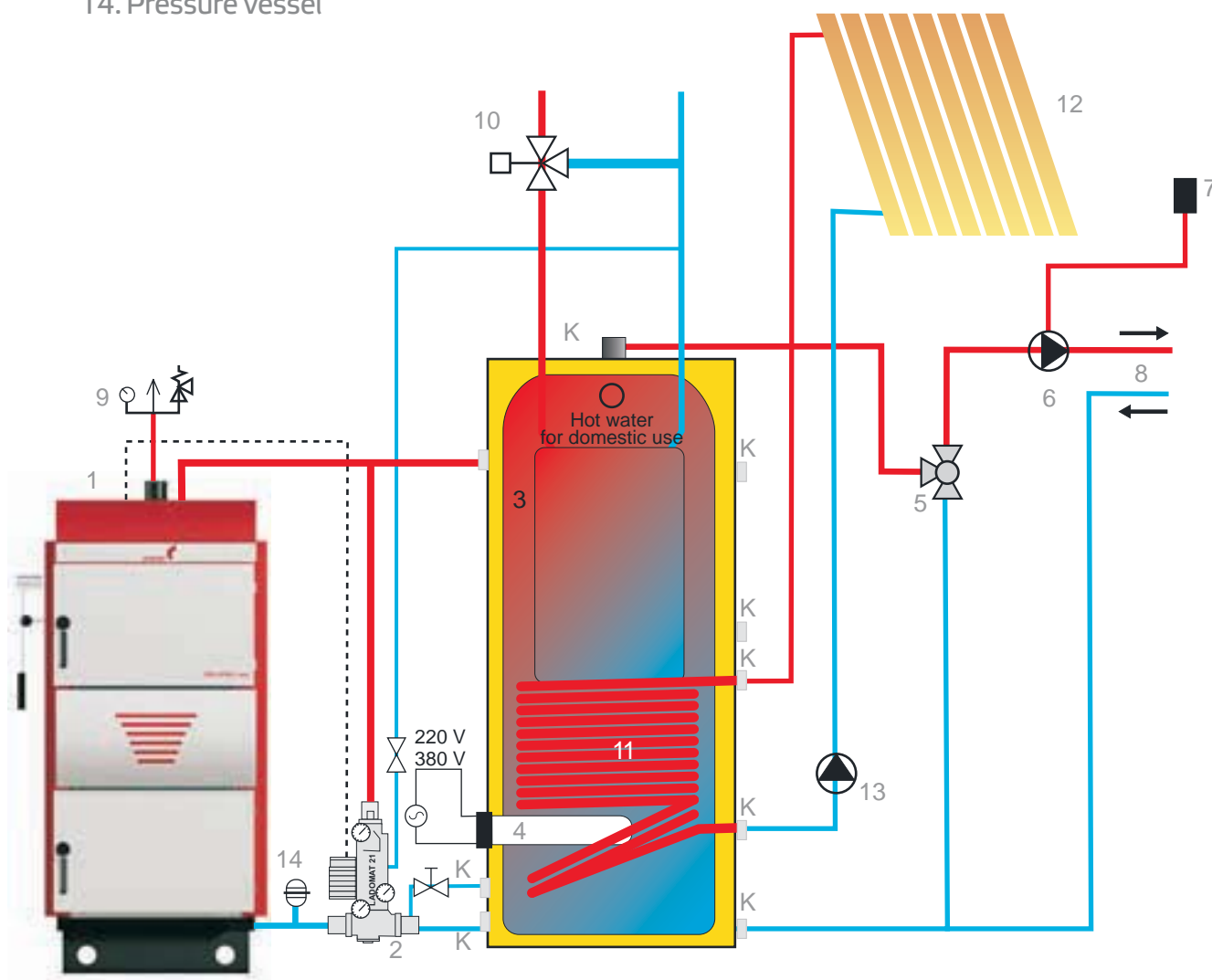
1. ORLIGNO 200 boiler
2. Thermo regulator
3. Accumulation tank
4. Electric heater
5. Three-way valve
6. Circulation pump
7. Room thermostat
8. Heating system exit
9. Safety group
10. Valve mixing hot water for domestic use
11. Pressure vessel



# Installation diagram - ORLIGNO 200

Connecting ORLIGNO 200 boiler with a heat accumulation tank and a solar collector.

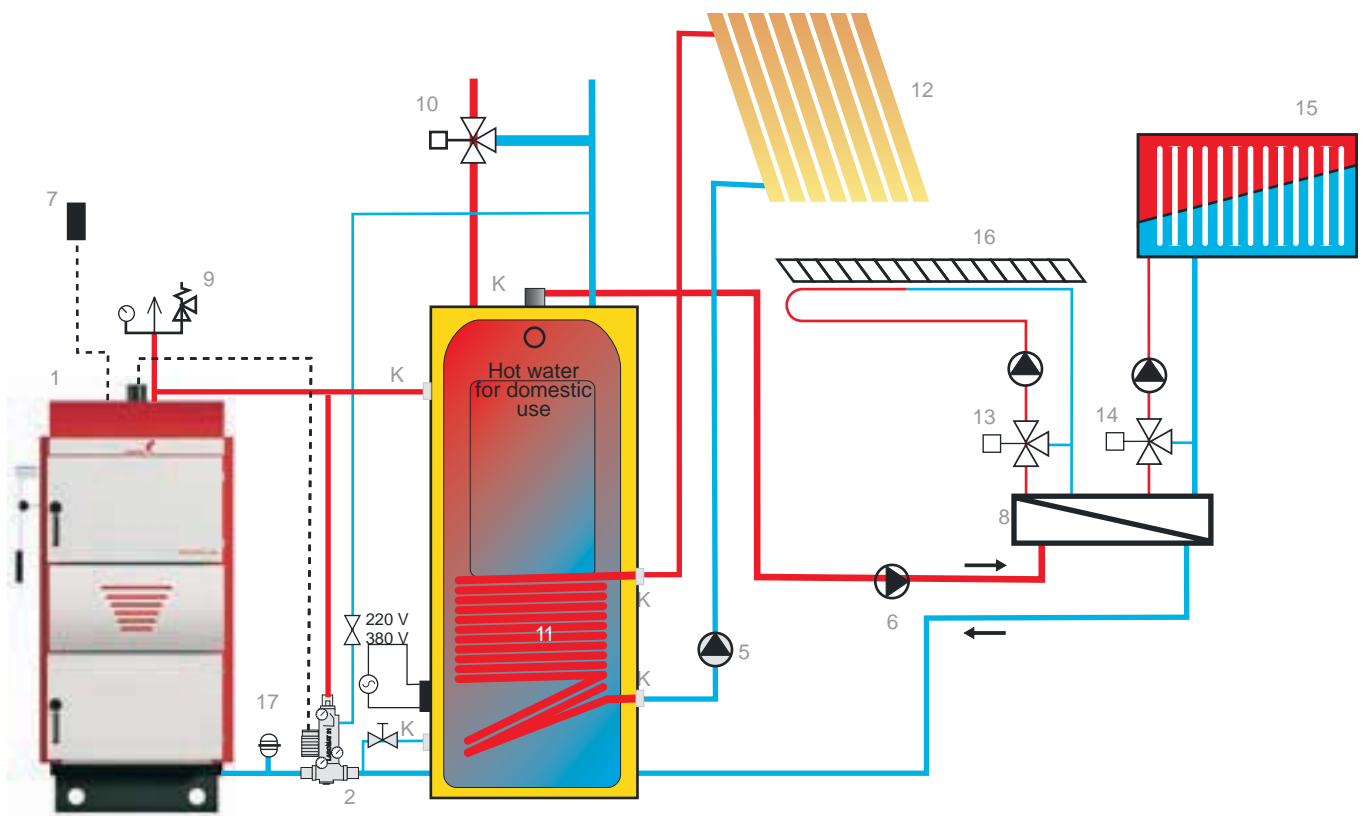
1. ORLIGNO 200 boiler
2. Thermo regulator
3. Accumulation tank
4. Electric heater
5. Three-way valve
6. Circulation pump
7. Room thermostat
8. Heating system exit
9. Safety group
10. Valve mixing hot water for domestic use
11. Coil
12. Solar collector
13. Solar pump
14. Pressure vessel



# Installation diagram - ORLIGNO 200

Connecting ORLIGNO 200 boiler with a heat accumulation tank, solar collector and floor heating.

1. ORLIGNO 200 boiler
2. Thermo regulator
3. Container with hot water for domestic use feeder
4. Electric heater
5. Solar pump
6. Circulation pump
7. Ekoster Control
8. Central heating dispenser
9. Safety group
10. Three-way valve mixing hot water for domestic use
11. Coil
12. Solar collectors
13. Valve mixing floor heating feeder
14. Valve mixing floor heating feeder
15. Radiators
16. Floor heating
17. Pressure vessel





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[www.orlanski.pl](http://www.orlanski.pl)



POSSIBLE TO OBTAIN ECOLOGICAL GRANT

\* ALL INFORMATION INCLUDED IN THE COMPANY'S ADVERTISEMENT IS FOR THE PURPOSE OF CONVEYING GENERAL INFORMATION ONLY AND CANNOT.

\*\* PRINTED ON 20.04.2012 R.

**TCP/11/16(243)**

**Planning Application 12/01396/FLL – Installation of a biomass boiler and flue (in retrospect) at Tayside Hotel, 51-53 Mill Street, Stanley, PH1 4NL**

## **REPRESENTATIONS**

- Objection from Mr and Mrs Skelton, dated 7 August 2012
- Objection from Mr and Mrs Zaczek, dated 12 August 2012
- Objection from Ms Clark, dated 14 August 2012
- Objection from Mrs A Bryce, dated 14 August 2012
- Objection from Mr W Bryce, dated 14 August 2012
- Objections from Isobel Stephen, dated 15 August and 24 August 2012
- Representation from Environmental Health Manager, dated 3 September 2012
- Representation from Environmental Health Manager, dated 27 September 2012
- Objection from Environmental Health Manager, date 8 January 2013
- Representation from Mr and Mrs Bryce, dated 24 April 2013
- Representation from Williamina Clark, dated 24 April 2013
- Representation from Mr and Mrs Zaczek, dated 28 April 2013
- Representation from Mr and Mrs Skelton, dated 29 April 2013





ABW

**Douglas & Caroline Skelton**

10 East Brougham Street  
STANLEY  
Perth  
PH1 4NJ

7 August 2012

**The Development Quality Manager**  
The Environment Service  
Perth & Kinross Council  
Pullar House  
35 Kinnoull Street  
Perth  
PH1 5GD

**Attention of Mr Nick Brian**

**The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008**

**Consultation on an Application**                      **Ref: 12/01396/FLL**  
**RE: Installation of a Biomass boiler and Flue (in retrospect)**  
**At Tayside Hotel 51-53 Mill Street, Stanley. PH1 4NL**

Dear Mr Brian,

As the owner of a property near the development, I must advise you of an ongoing complaint regarding emissions from the above.

We have frequently experienced a strong smell of smoke from this installation over several months. Details of some of these events have recently been passed to the Environmental Health Department of Perth & Kinross Council, as part of the investigation.

It is unfortunate that a solution to the problem was not found prior to this.

If the application were to be approved, it would result in further exposure to this air pollution.

I therefore object to Planning Application 12/01396/FLL as it would continue to have a detrimental effect not only on my property, but also the wider area.

Yours Faithfully

[Redacted Signature]



PERTH + KINROSS COUNCIL,

AmCB

The Development Quality Manager  
PLANNING + REGENERATION,  
Pullar House

Mr K.R.Zaczek & Mrs C.Zaczek  
Kingrath

35, Kinnoull Street

17, East Brougham street  
Stanley

Perth

Perth

PH1 5GD

PH1 4NJ

12th of August 2012.

RECEIVED  
15 AUG 2012

PLANNING APPLICATION REF. (RETROSPECTIVE).  
12/01396/FLL

Dear Sir / Madam,

We fundamentally object to planning application Ref-No- 12/01396/  
FLL

We have had to endure continuous smoke permeating into our home which is unacceptable and could potentially be detrimental to our families health and wellbeing in the long-term.

Smoke and fumes pollute the garden area, which leads to the loss of our amenities and enjoyment outdoors, this also determines when we can dry washing. We cannot freely open doors or windows at the rear of our home. These serious issues have disrupted our valuable quality family home life since the 26th of April 2012. A further detailed report can be obtained from environmental services at Perth and Kinross Council.

Yours sincerely





AmCB

13A East Brougham Street  
Stanley Perth PH1 4NT  
14 August 2012

The Development Manager

Perth + Kinross Council

Pullar House

35 Kinross Street

Perth PH1 5GD

Dear Sir,



Planning Application Ref (Retrospective)

12/01396/FL

I refer to the above application for planning by Lakeside Hotel Stanley and I object to the plant being on its present site. This is based on the fact that the smoke and obnoxious odour emitted by it comes into my house when my back door and windows are open and the wind is in my direction

Yhe/



301A  
The Environment Department have a  
detailed report of my complaint

Yours faithfully



Ms W Clark

15 EAST BROUGHAM ST

TO

STANLEY

THE DEVELOPMENT Quality Manager

PHILIPS

Dulbar House

35 Kinnaird ST

Perth.

PHI SGD

ENTERED IN COMPUTER

RECEIVED  
20 AUG 2012  
02 AUG 2012

Dear Sir/Madam

Re retrospective planning application  
Ref NO 12/01396 FLL for biomass boiler at

Tayside Hotel, Stanley. I must object  
most strongly to this as we are really  
badly affected by acid smoke and  
noxious fumes blowing over and into  
our home at various times of the  
day and night meaning that we cannot  
freely open our back door and windows  
I have a serious lung disease and  
this is a major health hazard to me  
Yours faithfully

Mrs A Bryce

275

AMCB





THE DEVELOPMENT  
QUALITY MANAGER  
PULLAR HOUSE  
35 KINNOULL ST  
PERTH  
PH1 5GD.

15 EAST BROUGHAM STREET  
STANLEY  
PH14NJ  
14-8-12

RECEIVED  
20 AUG 2012  
20 AUG 2012

Dear Sir / Madam

Re retrospective planning for biomass boiler at Fayside hotel Stanley. I must object most strongly to this as I am very concerned for my wifes health with the amount of acid smoke and fumes blowing into our property. Meaning that we cant enjoy any good weather, hang out washing or open our back door or windows

Yours Faithfully

[Redacted signature]



Mr W Bryce

AmCB



12/01396/FLL

Isobel Stephen

[REDACTED]  
13 East Brougham  
Stanley  
PH14 1NS

Dear Sir

I continually have to close  
windows and bring my washing  
in and rewash it if I didn't  
notice it quick enough as  
it leaves black specks  
on it and makes it smell  
goes for my chest as I  
don't keep too well

Hope this will be resolved  
as quickly as possible

Yours faithfully  
PERTH AND KINROSS COUNCIL  
THE ENVIRONMENT SERVICE

DATE 15 AUG 2012

ISSUED TO KS FILE 586086

REPLY DATE 5/9/12

ENQUIRY / SERVICE REQUEST

RECEIVED

AMC13

27 AUG 2012

CUSTOMER SERVICE  
POINT

24 AUG 2012

RECEIVED  
Development Management

Isabel Stephen  
13 East Doughton St  
Stanley  
FRI 24/8/12  
24/8/12

Planning App No. 12/C1396/FLL

Dear Sir/Madam

I write to object to the Tayside  
Holes app to install a biomass  
boiler and flue.

The smell and pollution from this  
system invades my home. I cannot  
hang washing out when it is in use  
as the items become soiled with  
black spots.

I believe that substances other  
than approved fuel are being burned  
and the smell affects my throat, chest  
and breathing.

Yours faithfully  
[Redacted Signature]

# Memorandum

To	Development Quality Manager	From	Environmental Health Manager
Your ref	PK12/01396/FLL	Our ref	LR
Date	3 September 2012	Tel No	(01738) 476462

The Environment Service

Pullar House, 35 Kinnoull Street, Perth PH1 5GD

## **Consultation on an Application for Planning Permission**

**PK12/01396/FLL RE: Installation of a biomass boiler and flue (in retrospect) Tayside Hotel 51- 53 Mill Street Stanley Perth PH1 4NL for Tayside Hotel**

I refer to your letter dated 3 August 2012 in connection with the above application and have the following comments to make.

### **Recommendation**

**I am currently unable to complete my appraisal of this application, and request that the application be deferred until further information has been submitted to and evaluated by this Service.**

### **Comments**

The applicant has fitted an Orligno 200 60kw wood gasification biomass boiler and this application is in retrospect. The biomass boiler is located in an outbuilding, adjacent to the Tayside Hotel which is in ownership of applicant.

Biomass has the potential to increase ambient air concentrations of nitrogen dioxide and particulate matter. The Environmental Act 1995 places a duty on local authorities to review and assess air quality within their area. Technical guidance LAQM.TG09 which accompanies this act, advises that biomass boilers within the range of 50kW to 20MW should be assessed.

An email dated 1 August from the agent Brent Quinn of Cockburn's Consultants to the planning authority states that the application should not be made invalid on the basis of the biomass boiler, principally because the boiler itself does not require planning permission as it is only the flue aspect which falls under planning control.

This Service has to take into account the biomass system installed as this determines what is expelled out of the flue, as well as the flue height and diameter, to determine the effective flue height, dispersion and determine effects of NO<sub>2</sub> and PM<sub>10</sub> concentrations on ambient air quality.

The applicant has submitted supporting documentation and within the manufacturer's brochure the flue diameter is stated as 210mm.



Certificate of product approval submitted with this application does not cover the Angus Origno 200 60kW model that the applicant has installed.

It must be noted that this Service is investigating verified nuisance complaints, in accordance with legislation Environmental Protection Act 1990 part III sec 79, in connection with the above installation and are at present are in discussions with the applicant.

This Service received the first initial complaint on 26 April 2012 with regards to smoke within complainants property, two officers then went out on the 1 May 2012 and smoke was emitting from the flue, but no smoke or smoke odour was verified within the complainant's property.

However officers visited the Hotel to make them aware of complaint and to establish if planning permission had been obtained. At that time the applicant stated that planning permission was not required as it was a permitted development.

It was subsequently established through the Planning authority on 1 May 2012 that the development did not come under the permitted development legislation and Planning permission was required and the applicant informed on this date.

For this Service to properly assess the proposed biomass boiler and flue, I request that the applicant supplies further information. The applicant must submit the dimensions of buildings within 5 times the stack height (above ground) level.

This Service had an informal meeting with the applicant on the 14 August 2012 to discuss the nuisance complaints and at that meeting the applicant was requested to submit a Report, 14 days from the date of meeting, from an independent consultant with regards to the biomass and flue capacity. To date this Service has not received said report.

There are six letters of objection at the time of writing this memorandum all stating smoke and smoke odours are causing loss of amenity to their properties and external areas.

In this regard loss of amenity has been witnessed and corroborated on numerous occasions at nearby residencies by officers from both The Environment Service and also the Safer Communities Team (part of The Criminal Justice Service) indicating a statutory nuisance is currently being caused by the operation of the biomass boiler.

In the absence of the aforementioned information and operation of the biomass boiler in a manner that does not cause nuisance conditions to local residents we cannot support the planning application at this stage.





# Memorandum

To Development Quality Manager

From Environmental Health Manager

Your ref PK12/01396/FLL

Our ref LR

Tel No 01738 476462

Date 27 September 2012

The Environment Service

Pullar House, 35 Kinnoull Street, Perth PH1 5GD

## Consultation on an Application for Planning Permission

### Environmental Health

#### Recommendation

**I am currently unable to complete my appraisal of this application, and request that the application be deferred until further information has been submitted to, evaluated by, this Service.**

#### Comments

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Biomass has the potential to increase ambient air concentrations of nitrogen dioxide and particulate matter. The Environmental Act 1995 places a duty on local authorities to review and assess air quality within their area. Technical guidance LAQM.TG09 which accompanies this act, advises that biomass boilers within the range of 50kW to 20MW should be assessed.

The applicant has now partially submitted the information requested in my memorandum dated 30 August 2012. The applicant has stated that the flue height is 4 metres and the adjacent building is 7 metres tall, therefore in accordance with technical guidance LAQM.TG09 the Screening process indicated the flue has a negative effective stack height. Therefore emissions from the boiler particularly (PM10) and nitrogen dioxide (NO2) may affect neighbouring properties.

This service also has concerns with regards to the positioning of the flue and the closeness to the adjacent 7 metre high hotel building, which is approximately 3.5 metres from the flue, due to dispersion of smoke from the flue.

It must be noted that this Service has verified nuisance complaints with regards to smoke odour within two neighbouring residential properties which are within close proximity to the application site. I must inform you as a result this Service is considering the issue of an abatement notice.

Therefore I cannot complete my consideration of this application in terms of air quality and nuisance from smoke or odour until a detailed air quality assessment, completed by a suitable qualified consultant, has been submitted to and evaluated by this Service.

It must be noted that this Service previously requested such a report from Mr Twaddle on the 14 August 2012.

It is recommended the air quality assessment should include site description, local build environment, local topography, local meteorology, boiler; details, performance and management, fuel; all fuel types used storage and stocking times, operational times and dispersion modelling (AERMOD or ADMS), local building down wash and mitigation measures to abate nuisance conditions.

I would reiterate that these parameters are recommendations only and any competent independent consultant would advise the applicant further, taking into consideration that each assessment should be bespoke to each individual biomass boiler.

A handwritten signature in purple ink, consisting of stylized, overlapping loops and strokes.

# Memorandum

To Development Quality Manager

From Environmental Health Manager

Your ref PK12/01396/FLL

Our ref LRE

Tel No 01738 476462

Date 8 January 2013

The Environment Service

Pullar House, 35 Kinnoull Street, Perth PH1 5GD

## **Consultation on an Application for Planning Permission**

**RE; Installation of a biomass boiler and flue (in retrospect) Tayside Hotel 51-53 Mill Street Stanley Perth PH1 4NL for Tayside Hotel**

I refer to your email dated 14 December 2012 and the attached air quality report submitted in connection with the above application and have the following comments to make.

### **Environmental Health**

#### **Recommendation**

**I cannot support this application due to loss of amenity at nearby/ neighbouring residential properties, with regards to smoke/odour nuisance.**

#### **Comments**

The applicant has fitted an Orligno 200 60kW wood gasification biomass boiler and this application is in retrospect.

Further information was requested from the applicant in planning memorandum dated 3 September 2012, as TG (09) advises that biomass boilers within the range of 50kW to 20MW should be assessed to determine possible increase to ambient air concentrations for nitrogen dioxide and particulate matter. Applicant emailed the requested information direct to this Service, email dated 10 September 2012.

From the information supplied by the applicant the screening process in accordance with technical guidance LAQM TG (09) indicated the flue has a negative stack height. Therefore an air quality assessment was requested in memorandum dated 27 September 2012. The aforementioned memorandum also made reference to the nuisance from smoke /odour from the boiler affecting neighbouring residents and therefore recommended that the report should include mitigation measures to abate the nuisance.

Please note that this Service served an abatement notice under section 79 of the Environmental Protection Act section 79, 1(b) and 79, 1(d) dated 11 October 2012 on the applicant and his daughter Mrs J Hardy regarding the smoke odour nuisance created by the biomass boiler. The notice was appealed on 1 November 2012 and at an interim hearing the Sheriff upheld the notice. A full hearing date has been set for the 1 February 2013.

The applicant's agent Brent Quinn submitted report no TAH.001 by email dated 14 December 2012.

### **Air Quality Report**

The report was carried out by consultants Seal Environment Ltd and the author of the report is Derek Schoehuys.

The report addresses air quality however there is no reference to nuisance and no attempt has been made to demonstrate nuisance through modelling of odour emission rates. It is my contention that the applicant should be demonstrating ways to mitigate smoke odour nuisance within this report, as this was one of the issues raised, as well as air quality in the aforementioned memorandum dated 27 September 2012.

Within in the report it is noted that information with regards to the parameters of flue and building heights are different from the original information supplied by the applicant to this Service. It is also noted that the flue exhaust fan, mentioned in the report section 3 Boiler & 3.2 Emissions data, was fitted after the abatement notice dated 10 October 2012, had been served on the applicants .

In general this Service is satisfied with the methodology used in this report; however there are a few minor issues I wish to comment on.

>Table 3,  $PM_{10}$   $18\mu g m^{-3}$  limit, is incorrect and should read annual average

>The average daily monogram and associated adjusted emission rate formula  $EA=E/(32-G)$  has been used but in Scotland the annual mean standard is more stringent and the associated formula which would have been more appropriate is  $EA=E/(18-G)$  this formula is from AEA Biomass Scotland document rather than TG09; therefore the consultant may not have know this, however there are important notes in TG09 that refers to further guidance such as AEA report "Technical Guidance: screening assessment for biomass boilers" which includes guidance for Scotland.

>The consultant at the screening stage, which indicates if a more detailed air quality assessment is required, does not take account of other near by buildings when calculating the effective stack height. Section 5.2 page 14, the formula in TG (09) is  $C=1.6(U-H)$  where C is the effective stack height, U actual stack height and H is the height of the tallest building within a distance of 5 times the stack height. It is noted that the author does not use this formulae correctly but modelling was carried out for air quality, therefore although the screening methodology had errors, a more detailed assessment was carried out, so any errors at screening stage are superseded.

>Section 6.2. The consultant has chosen to use meteorological data from Leuchars. This Service acknowledges that it would have been more appropriate to use data from Strathallan, as it would give more accurate data. The consultant has also chosen to use only meteorological data for 2003 and 2005; again this Service feels it would have been more appropriate that the past 5 years meteorological data should have been used to run a sensitivity analysis. The consultant does not give a reasonable explanation in the choice of years for this data set.

>It is also my contention that the Hotel should have been included as a receptor as it is listed in our GIS system as having a residential element as well as a commercial one, so therefore the annual mean would apply. If the hotel no longer has a residential element then the daily mean would apply, either way it should have been included as a receptor.

>Table 11 p22 Predicted ground level pollutant concentrations (process contribution) at sensitive receptors) of PM<sub>10</sub>. At receptor 6, Run 3 shows a maximum contribution of 0.31ugm<sup>-3</sup>. Whilst this is deemed as a slight adverse increase, it is not significant enough to take it above the 18ugm<sup>-3</sup> standard. Environmental Protection UK (EPUK) guidance refers this increase to be within the small magnitude rather than the “imperceptible” category. Although this is not enough to object to this application it must be noted that PM<sub>10</sub> is a non threshold pollutant and therefore efforts should always be made to reduce it, as any level has an adverse effect on health.

>The contour diagrams are given for the daily mean PM<sub>10</sub> levels, whereas it would have been more appropriate for these to be represented with the annual mean contours as this the more stringent objective for Scotland and therefore the results would have had more relevance.

### **Conclusion**

The comments made above, indicates a difference in opinion of best practice, but this Service acknowledges that these would not have any great significance on the outcome in the parameters of the modelling carried out, as any changes would be small.

Based on the evidence presented on the grounds of local air quality this Service agrees that objectives for PM<sub>10</sub> and NO<sub>2</sub> will not be breached and therefore have no objections to the application on the grounds of local air quality. However no part of this report addresses the nuisance from smoke odour and although it is stated that it is only steam coming from the flue and the emissions for NO<sub>2</sub> and PM<sub>10</sub>s do not breach objective limits, there can still be nuisance conditions such as smoke odour. Therefore this Service feels that the report fails to address the nuisance odour issue, raised in previous memorandums.

It is this Service’s contention that the operation of the biomass boiler and specifically the flue height and location will still cause nuisance conditions to local residents; therefore we cannot support the planning application due to the loss of residential amenity.





8063.

15 EAST BROUGHAM ST

Stanley

PH1 4NJ

24.4.2013.

APPLICATION Ref 12/01396/FLL

Installation of a biomass boiler &  
flue (in retrospect) at Tayside Hotel

Stanley PH1 4NL

YOUR Ref TCP/11/16(243)

Dear Sir/Madam,

CHIEF EXECUTIVES  
DEMOCRATIC SERVICES

25 APR 2013

RECEIVED

Further to your letter of  
16th April 2013 our original objections  
remain the same but I would like to  
point out that since an abatement notice  
was issued in November 2012 by Perth &  
Kinross Environmental Health Dept we  
have had absolutely no problem with  
Smoke/odour despite this being over  
the winter months

Yours sincerely

Mr and Mrs Bryce

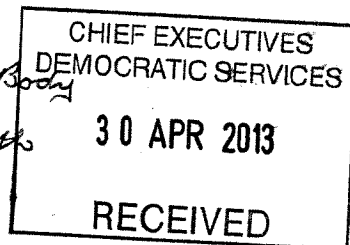




8865  
13A East Brougham Street  
Stanley Perth WA 6155

Your Ref TCP/11/16 (243) 24 April 2013

Ms Gillian A Taylor  
Clerk to the Local Review Body  
Perth & Kinross Council Perth



Dear Ms Taylor

I refer to your letter of 16 April re  
Application 12/01396/FLL review of Business Boiler and  
Flue at Seaside Hotel Stanley and would inform  
you that I still object to this Planning Application  
being granted. My objection is still as it was before  
i.e. smoke and odour being emitted from the flue

Since the Abatement Order was placed on this  
installation by the Environment Department there  
has been no problem but if Planning Application  
were granted for the same site the trouble would  
begin again.

Yours sincerely

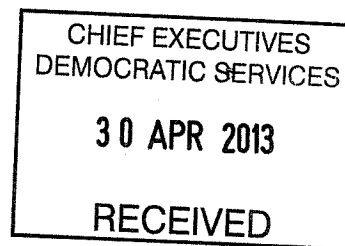
 Williamina Clark 



Gillian Taylor  
Perth & Kinross Local Review Body  
2, High Street  
Perth  
PH1 5PH

Mr & Mrs K.R. Zaczek  
Kingrath  
East Brougham Street  
Stanley  
Perth  
PH1 4NJ  
28/04/2013

Your Ref : T.c.P/11/16 (243)



Dear Gillian Taylor

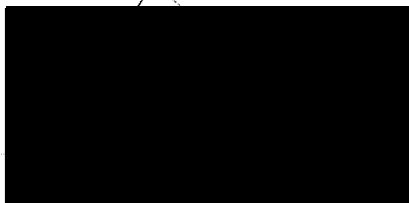
The original objections that we put forward in relation to this planning application reference 12/01396/FLL (In Retrospect) most firmly stand. Please find attached photocopy of our original objection dated 12th of August 2012. We very strongly agree with Perth and Kinross Planning Department on the refusal for this application and for all the reasons stated there within it.

The reasons regarding detrimental impact are indeed what we have had to endure until late November 2012 when an abatement notice was upheld and the boiler/flue was no longer in use. We have had no smoke/ odour nuisance since and our amenities have been restored.

Additional Note : The only exception being two days, 4th and 5th of December when during operation it caused smoke/odour nuisance.

Yours Sincerely

K.R. & C Zaczek



PERTH + KINROSS COUNCIL,

The Development Quality Manager  
PLANNING + REGENERATION,  
Pullar House

35, Kinnoull Street

Perth

PH1 5GD

Mr K.R.Zaczek & Mrs C.Zaczek

Kingrath

17, East Brougham street

Stanley

Perth

PH1 4NJ

12th of August 2012.

PLANNING APPLICATION REF. (RETROSPECTIVE)  
12/01396/FLL

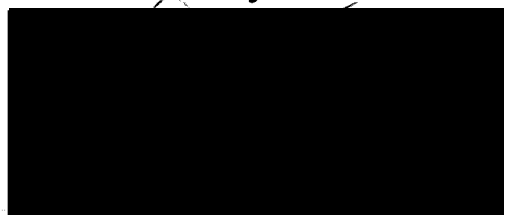
Dear Sir / Madam,

We fundamentally object to planning application Ref-No- 12/01396/  
FLL

We have had to endure continuous smoke permeating into our home which is unacceptable and could potentially be detrimental to our families health and wellbeing in the long-term.

Smoke and fumes pollute the garden area, which leads to the loss of our amenities and enjoyment outdoors, this also determines when we can dry washing. We cannot freely open doors or windows at the rear of our home. These serious issues have disrupted our valuable quality family home life since the 26th of April 2012. A further detailed report can be obtained from environmental services at Perth and Kinross Council.

Yours sincerely



**Audrey Brown - Democratic Services**

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**From:** Douglas Skelton [REDACTED]  
**Sent:** 29 April 2013 15:02  
**To:** CHX Planning Local Review Body - Generic Email Account  
**Subject:** TCP/11/16 (243) Installation of a Biomass boiler and Flue (in retrospect)

**Perth & Kinross Local Review Body**

Street  
 2 High Street  
 Perth  
 PH1 5PH

10 East Brougham

STANLEY  
 PH1 4NJ

Local Review Body: Case TCP/11/16 (243)

29 April 2013 **The****Town and Country Planning (Schemes of Delegation & Local Review Procedure) (Scotland) Regulations 2008**

**Application Ref: 12/01396/FLL - Installation of a Biomass boiler and Flue (in retrospect)**  
**at Tayside Hotel 51-53 Mill Street, Stanley. PH1 4NL**

Dear Gillian Taylor,

In reply to your letter of 16 April regarding the above, thank you for the opportunity to make further representations, in response to comments made in the 'Notice of Review' submitted by the appellant's agent on 8 April.

The statement, 'Indeed, the complainant premises (all within the immediate locale) are currently affected by smoke and odour from their own heating systems and chimney emissions, as illustrated in Appendix 2', must be directed at us, as we are the only objectors that utilise a multi-fuel stove. However, in July, August and September, when the recorded complaints were made, our stove was never in use, indeed at the time of the complaints very few, if any, fires were on in the vicinity. We finally did start to use our stove in October. The applicant's boiler would, however, be operating all-year round.

We also take exception to the suggestion 'that the representations made may have been made for reasons that address alternative issues'. It would seem that the appellant would prefer to try and discredit us and our complaints rather than accept that there is a statutory nuisance and deal with it.

Since P&K Environmental Health Dept. obtained the abatement order which stopped the use of the boiler, the nuisance had completely disappeared, that is, until the 4<sup>th</sup> and 5<sup>th</sup> December 2012, when an air quality assessment run was permitted. On reading the report we were surprised that the test was done 'from cold', in less than ideal conditions, as two days were allowed. Our main concern, however, was that only 'Predicted ground level pollutant concentrations' were given assuming theoretical fuel combustion based on the manufacturers datasheets and that no actual air quality measurements were taken.

It also discussed (in 5.1) that smoke may not be sufficiently dispersed *...for winds from the North North East which could suffer from downwash due to the main hotel building and due to the annex. However these are infrequent...* We feel it is unreasonable to have to rely on wind direction to avoid this, especially as there have been several prolonged spells of easterly winds recently.

We therefore request that refusal of Planning Application 12/01396/FLL be upheld.

Yours Faithfully

**Douglas and Caroline Skelton**

