Comhairle Contae
Átha Cliath Theas
South Dublin County Council

Architectural Services Department

Thermal upgrading and energy-use improvement works to Kiltalown house, Kiltalown, Tallaght, Dublin 24.

Building Dossier for works done during October and November 2013

Date of this report, February 2015

The front façade and main entrance to Kiltalown house. (Source: The Local Studies collection of South Dublin Libraries)

This project was financially assisted by the Better Energy Warmer Homes 2013 Scheme of the Sustainable Energy Authority of Ireland (S.E.A.I.) and by the Department of the Environment, Community and Local Government

Introduction

The Community Services department of South Dublin County Council wished to carry out important works to this house to reduce the cost of energy for space and water heating and to ensure the continued economic use of the building. The Tallaght Rehabilitation Project (T.R.P.) has successfully used the building for many years. In recent years their budget for maintenance and energy use had come under increasing pressure. The Architectural Services department of South Dublin County Council (a Grade 2 conservation accredited architectural practice) was asked to advise on the existing fabric, the pattern of energy use and to advise on how the cost of energy use might be reduced and better managed.

In early 2013 before the works, Kiltalown house had a Building Energy Rating of D2. A design was prepared which would improve this to B2. However this would have required the insulation of the external walls of the house. This was considered unsuitable because of the expense of lining the interiors of the late Georgian block with a calcium silicate board and the associated re-decoration and second fix mechanical and electrical work and because the vapour permeability of the existing wall constructions and the impact of lining or insulating one side of same was not known. Also such works would have required a formal public consultation process under the Part VIII of the Planning and Development Acts for which there was no time in the grant aid programme. Therefore a lesser scope of works was considered.

This report is a building dossier, a summary of the previous condition of the structure and the conservation works carried out during October and November 2013. The report is intended to be a record of the works for the client or building owner to assist them with the future maintenance and care of the building, to inform future conservators and contractors who will work on the building, and the wider public who may be interested in this building. The report has been issued to the client, South Dublin County Council's Conservation Officer, and the Local Studies Section of South Dublin Libraries in the Tallaght branch. This report also fulfils an obligation under the Safety Health and Welfare (Construction) Regulations 2006 to give the client or Employer a Safety File which includes all information on the works done, risks identified and notes on maintenance. The dossier includes all the relevant information.

Feargal Ó Suilleabháin, architect, MRIAI.
Architectural Services Department,
South Dublin County Council.

2nd February 2014

Contents

Credits

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Funding: The project was funded by South Dublin County Council. The project was financially assisted by the Sustainable Energy Authority of Ireland (S.E.A.I.) under its Better Energy Warmer Homes Scheme 2013.

A description of Kiltalown house

Kiltalown House consists of a five-bay, two-storey late-Georgian house built around 1810 attached to an older elongated rectangular farmhouse which probably dates from the seventeenth century but may be older. Kiltalown House is located 3.6km to the west Tallaght Village off the Blessington road (N81), in the townland of Kiltalown, in the Barony of Uppercross and in the Parish of Tallaght. The site of the house is on a slight elevation with its main façade facing due south-east towards the hills of Tallaght. The ordnance survey grid reference is 706519:726233. The house and its site are protected under the Planning and Development legislation and under National Monuments legislation: Record of Protected Structures (R.P.S.) Map Ref. No. 342 and Record of Monuments and Places (R.M.P.) Nos. DU021-072 Church Site, DU021-081 Linear Earthwork, DU021-090 Standing Stone and DU022-054 the Pale Ditch.

Many of the house's original and early features have been retained including several sash windows and the entrance doorway with a fanlight and console above. One of the most impressive features of the house is the granite entrance portico and doorway with its massive Doric columns. Inside the house, many of the original doors and windows have been maintained and repaired, and many new modern doors have also been added. A small amount of the early drawn glass still also survives in some of the windows from the mid-20th century. This building has been modified a lot and is the product of many stages of development.

Aerial view of Kiltalown house from the east (image sourced from bing.maps.com)

Statement of Significance

Kiltalown house is a fine example of a late Georgian country house with surviving features from an earlier farmhouse to which it was added. It is built from high quality, locally sourced materials and still has many original features: some doors, ironmongery, and marble surrounds to the fireplaces. The massive Doric entrance porch is probably the most architecturally significant feature of the house.

The site of the house is the site of an early Christian church, demolished and a fragment of the Pale Ditch. The earliest evidence of human activity in the area dates from the Bronze Age (c.2400-500BC). A standing stone, believed to be from this period was located in the grounds to the south of the house. Further Bronze Age activity is evident with the uncovering of a cist burial c.1847, in west Kiltalown, close to the boundary of Killinarden townland. Remains of the Pale Ditch, a linear earthwork are visible in the grounds of Kiltalown House. It is believed to be the remains of the pale boundary ditch that was constructed following an Act of Parliament of 1494-5. The ditch, which is tree lined, is to the south and west of Kiltalown house and is shown on the 1st edition ordnance survey maps from the mid-nineteenth century.

Kiltalown house was recorded on the survey of south county Dublin by the National Inventory of Architectural Heritage of Ireland, record number 11214023. It is rated as being of regional importance and as being of architectural, social and technical significance.

The current use of the building and a description of the interventions

Kiltalown house is currently in use as a rehabilitation centre and regular maintenance and repairs have been carried out so there are very few defects evident in the built fabric. The only defect relevant to this report were some stains on the upper east wall and ceiling and an odour of dampness in the room at the eastern end of the first floor level of the late-Georgian block. After investigation of the roof above this area, it was noted that 4 slates had slipped from the roof behind the parapet and the bituminous felt beneath had failed, admitting rain water to the attic space and ceilings and walls below. This defect is relevant to this report because damp fabric is more thermally conductive and drier fabric is warmer. These slates were re-fixed and partly replaced and the damp construction was allowed to dry out gradually.

Left side: A view of one of the staff offices - that between the stairwells. Right side: A view of the training room to the south eastern corner. Both photos taken September 2013

Left side: The north-eastern hip of the roof of the late Georgian block and parapet wall, viewed from the north, September 2013. Right side: The entrance hall, September 2013

Use of the building:

The pattern of use is such that the building is in use 7 days a week from 8.00 AM until 5.00 or 6.00 PM in the evening. It is staffed by approximately 7 people and visited by large number of people who stay for an

hour or more. The rooms are used as staff areas, consultancy or training rooms and ancillary service areas. Nobody resides in the house. Some rooms are used more than others, the entrance lobby, reception area, the staff offices and kitchen (at the south-western end of the rere part of the house) are used regularly. The meeting or training rooms at first floor level of the late Georgian block and at the north-eastern end of the rere part of the house are used occasionally. The kitchenette, auditorium and toilets at the north-eastern end of the house are used less often. Therefore the house would benefit from two or three zones which could be heated to different temperatures and at different times, according to their anticipated use, occupancy levels and the season. This is discussed further in detail below.

Having considered the lifecycle energy use of the building the following factors were considered relevant. The building is discussed on an elemental basis starting with building management, the site, the roof and then proceeding downward to the walls, openings and fitting and fixtures.

Building management:
A new boiler was installed to supplement that already existing in the east part of the house with new, more sophisticated heating controls. Prior to the works most of the house was heated with electric storage heaters which were hard to control and expensive to operate. As part of the works these were removed and replaced with a more controllable gas fired central heating system, using the existing boiler combined with a new boiler which can be programmed and adjusted to the needs and uses of different parts of the house.

The building users were advised that heating levels be reduced to a minimum in those areas of the building which are only used occasionally. The temperature should be enough to avoid mustiness and mould growth. Doors to these areas should be kept closed. Windows should be closed, shutters closed and curtains and blinds drawn after dark and when the building is not in use to retain heat in the building.

The setting:
As is evident from the aerial photo above, the setting and orientation of the house is ideal to reduce heat loss by wind-chill surface cooling and air leakage caused by the prevailing south-westerly winds. The location of Kiltalown house to the north-east of the pre-existing pale ditch, sheltered by its mature trees and the orientation of the original seventeenth century farmhouse (and its extensions built during the nineteenth century) along a south-western, north-eastern axis, in line with the prevailing winds have meant that heat loss caused by wind chill is minimised. This is a traditional response to climate which is often found in old buildings. Originally the south-western gable might have been blank; survey drawings of the building from the 1980's suggest that the first floor window in the south-western gable is of recent origin. No changes were proposed to the setting of the house as part of this proposal.

The roof and attics:

With the exception of the small attic space at the extreme western end of the old farmhouse (the south-western corner of the house) all the attics in the house had already been insulated with a blown, pink fibre insulation. This helped to maintain a comfortable temperature within the house and to lower heating costs. However the insulation was unevenly spread around the roof and has been compressed in places where the attic spaces had been used for storage of boxes and files.


Left side: Two views of the attic above the older, rere part of the house. Right side: The blown insulation and steel cold water storage tank are visible. September 2013


Left side: The main attic above the front, late-Georgian block. Right side: the small un-insulated attic in the extreme south-western corner of the older rere part of the house. September 2013

The following works to the roof space were carried out:-

(1) The existing blown insulation was evenly spread with a garden rake or a similar implement,

(2) All the cavities between the roof space and the coved ceilings below were insulated with a 50mm thick hemp board, cut to size and slid down between the rafters leaving a clear a minimum 50mm clear ventilation space above the insulation board and below the roof felt.

(3) In the room and kitchenette at the east end of the house, new skimmed plasterboard ceiling was built to the underside of the previously exposed joists and a 300mm thick sheep's wool insulation quilt was laid between the joists. The existing tubular fluorescent lights which previously worked as up-lighters of the previously exposed coupled roof, were re-fixed to the underside of the new plasterboard ceiling. A new attic hatch was installed to give access to the new attic space made above the ceiling. The attic hatch was located above the kitchenette in the corner of the room. The insulation on the new ceiling has made the new attic space above cold. Therefore this area was vented by six new in-line slate vents, three on each roof pitch to cross ventilate the cold attic space. The screw-in, soffit vents specified originally were not needed. The insulation laid on the ceiling is a sheep's wool insulation quilt, 300mm thick. A new heat and smoke detector and a warning light were fitted to the new ceiling above the kitchenette.

Following consultation with the client it was decided not to repeat this intervention in the auditorium space to the east of the kitchenette, at the extreme east end of the house, although this might be considered in the future.

(4) The existing steel cold water storage tank above the eastern stairwell was replaced with a new uPVC tank, wrapped with a insulating jacket because it was in the cold side of the attic, above the insulation. The older steel tanks have a limited lifespan and can rust and leak. The old tank was too big to remove from the attic so has been left aside in the attic space. The small exposed parts of the pipework leading to the new tank at this location have been lagged with pipe insulation.

(5) Proprietary in-line slate vents were inserted on the existing slate roof covering all around the existing building to better ventilate the cold roof space above the insulation – approximately 15 along the back of the house or north-western elevation and a total of 14 new in-line slate vents built into the lower part of the pitch of all four sides of the hipped roof above the late Georgian block.

(6) One of the four previously un-insulated and unsealed attic hatch doors was removed and replaced with a new proprietary insulated and draught-sealed door, fitted with fold down ladders to improve the energy efficiency of the ceiling zone and to facilitate future access to and from the attic spaces. Two of the existing attic hatch doors were retained and upgraded instead of replacement as was specified originally.

(7) The partition wall around the western stairwell which connects the first floor landing of the older, rere block with the first floor landing of the late-Georgian front block is exposed in the attic of the rere block because of the half-storey floor level differences between both blocks. The partition was insulated where it is exposed in the attic of the rere block - 30 sq.m. of mineral wool was stapled to the studs from within the attic.

Otherwise any new insulating material used was made from sheep's wool, hemp or another naturally hygroscopic insulating material, which are more tolerant of damp conditions that can exist in older buildings - if for example a slate slips or a lead flashing should fail. These materials will dry out naturally if they become wet without decomposing – assuming that the source of moisture is identified and remedied in good time. Closed-cell insulating materials of hydrocarbon or petrochemical origins are less tolerant of damp conditions and tend to "sweat" if poorly ventilated or if they become damp.

It was recommended that a new sheep's wool quilt be laid between the joists of the small un-insulated attic at the extreme south-western end of the house. However this was over-ruled by the building occupants who would prefer to continue using this space as a file storage area. The proposed insulation of the area would have meant that this area could no longer be used for file storage. Also, no vents were installed in the slate roof covering above this area.

The walls:
The wall thicknesses and construction vary according to the date of construction of the different parts of the house and the originally intended use. For example the former stables and outhouses at the east end of the house were converted to use as a kitchenette, a living room and auditorium in 2008. The walls in these areas are uncoursed random rubble walls with no internal plaster and are comparatively thin at 400mm. The only works done during 2008 was to lime wash their inner surface and apply a render to their outer surface. Therefore there is considerable heat loss through these walls, although the rooms contained within are only occasionally used.

The walls to the late-Georgian front block (circa 1810) are more uniformly built and are about 500mm thick. As would be expected the walls of the older farmhouse to the rere are more irregular and massive, up to 800mm thick in places. Most of the walls are plastered internally and rendered externally so their exact construction is not known. Where the wall gables are partly exposed in the roof space, these are of random uncoursed rubble granite jointed with a lime mortar. The openings are probably made with brick linings built into the stone walls. Following a Building Energy Rating assessment generally the U-value for the walls are in the order of 1.7 W/sq.m.K.

A view of the south-western end of the main attic above the rere of the house. Note the original south western gable of the early farmhouse, the oldest part of the house. The smaller attic at the exreme south-western end is on the other side of this wall and was built at a later date. Photograph taken September 2013.

As mentioned previously, we have recommended that the U-value of the external walls could be reduced as a longer term strategy. This could be done by installing a new vapour permeable calcium silicate lining board to the internal wall surfaces of the significant facades (the three facades of the late Georgian block) and an external insulation of lime render combined with hemp or other proprietary insulation to the less important facades of the old farmhouse and former stable buildings. These works were not carried out for reason mentioned previously in this report. We have also recommended the construction of a French drain around part of the building perimeter where the external ground levels are higher, or are level with the internal floor levels, to limit and prevent rising damp in these walls. These interventions would reduce the U-value of the external walls to 0.7 and would improve the Building Energy Rating to B2.

Draught sealing and controlled ventilation:
Although the following draught sealing interventions do not affect the Building Energy Rating as currently assessed by the SEAI software, they would significantly reduce heat loss by limiting uncontrolled ventilation more commonly known a draughts in the house.

The timber sliding sash windows at the back of the house are modern, small and relatively snug-fitting. Also their location on a sheltered wall and recessed into the openings mean that they admit few draughts, so no works were considered necessary. The windows in the late Georgian block to the front of the house are

older and much bigger. Some rattle during windy weather. For some unknown reason the seven windows at first floor level in this block have had their shutters and lining boards removed; they may have been removed during major renovation works done in the late 1980s when the house was in a derelict condition and had been fire-damaged. The following works were done to control draughts and to improve ventilation in certain areas:-

(1) With one exception, none of the fireplaces and chimneys in the house are used for combustion of solid fuels. Therefore a proprietary damper system supplied and installed by "Chimney Draught Stop Ltd." was fitted to the two chimney flues which are currently open and ventilated in the front, late-Georgian block. One inflatable balloon was also installed in the fireplace of the first floor training room, to draught proof the fireplace and chimney flue there.
(2) Cowls were fitted to the tops of the chimney pots to limit rainwater ingress to the flues
(3) Ventilation grilles were fitted to the existing sealed fireplaces (the staff dining room, one staff office at first floor level, the former kitchen fireplace in the disabled person's toilet and the corner fireplace in the ground floor staff office between the two stairwells) to prevent the build up of moisture in the old flues. Two permanent vents were installed in two existing flues, the blocked up corner fireplace in the room which contains the new boiler and in the flue of the former kitchen, now the disabled person's toilet.
(4) Brush-type draught seals were fitted to the rebates in the door frames of five external doors.

In addition to these works, the waste pipe from the mens' toilet was found to be defective and leaking. This was fixed and boxed in by the contractor. Finally, we have advised the building users to close the existing shutters on the sash windows at night and when the building is vacant.

In the longer term, the building owner and occupier were advised to consider the following works to further limit uncontrolled ventilation at some time in the future:-

(1) That new shutters and cases be installed to restore the seven first floor windows' original construction and appearance and to reduce the overall heat loss from these rooms.
(2) That all thirteen windows (ground and first floors) in the late Georgian block be draught sealed with a proprietary brush-seal system fitted into grooves around the sashes, meeting rails and frame of the windows. (If heat loss continues to be problematic after these works, further consideration can be given to lining the inside of the shutter boxes, the shutters themselves or installing secondary glazing).
(3) That the windows to the kitchenette and auditorium at the east end of the house be fitted with a specialised heat retaining blind or heavy curtains to reduce heat loss.

Left side: The emergency fire escape from the stairwell Right side: Existing modern sash windows at the back of the house. September 2013.

(4) That the four doors at the emergency exits be fitted with a proprietary brush-seal system built into their frame or door leaves to reduce draughts or uncontrolled ventilation. This includes the twin doors at the main entrance to the house, the door to the garden from the landing on the western stairwell, the door from the kitchenette to the courtyard, the door from the auditorium to the courtyard and the two doors at first floor level which access the emergency escape stairs at the north-east end of the house - in total seven door sets. As mentioned previously some of these doors were not draught sealed because of their unusual construction or because it was considered that the works was beyond the scope and expertise of the contractor. An expert joiner with experience in the repair of historic doors will be needed for this work, at some time in the future. The last two doors are modern and have severe rot along their lower edges and admit a lot of draughts. These could be replaced by modern draught-sealed, insulated doors. The very old door which opens from the auditorium to the courtyard should be retained because of its age, but it will require repairs and draught sealing by a skilled joiner with experience of repairing and thermally upgrading old joinery.

Space heating:

(1) The existing electrical storage heaters were decommissioned and removed because they were difficult to control and were expensive to operate. The unpainted areas of wall left exposed after their removal was not problematic because the new radiators covered most of these. In a few cases re-painting of the wall (or entire room) was necessary, for example where the previous radiator was poorly positioned on an internal partition wall and the new radiator was better positioned under an existing window. With the agreement of the building occupiers, two of the existing electrical sockets behind the former electrical storage heaters were retained and were not decommissioned – in the large first floor training room at the front of the house and in one of the small offices in the rere block. These sockets are still live.

Also a total of six column radiators were installed in the two main reception rooms at ground floor level; these are more expensive that the panel radiators specified originally but are more appropriate to the use and appearance these important and grand reception rooms which contain a lot of original joinery and decorative features.

(2) The pre-existing Ferrolli HE 25S Domestic Boiler which provides heated water to the existing the under floor heating in the kitchenette and auditorium is oversized but it was not used to feed any of the new radiators; it was considered too expensive and disruptive to the existing building fabric to extend its capacity to some of the new radiators installed as part of the works.

(3) A new 25kW boiler was installed in the utility room to operate the remainder of the new radiators in the south-western end of the house. This is supplied with gas from an extension to the existing mains supply pipe which had sufficient capacity. Also a single hot press was installed to replace the two previous hot presses. The capacity of the gas mains supply had been checked with the gas supplier. The location of the new boiler and gas mains extension are shown on the architectural drawing which is attached as an appendix to this report.

(4) New standard panel radiators were fitted to each room in accordance with the schedule in Appendix A to this report. All the new radiators were fitted with thermostatic radiator valves (T.R.V.s) to allow for further control of space-heating in an individual room. The new radiators were fitted to the existing timber panels below the radiators in the training rooms at the front of the late Georgian part of the house at first floor level. As mentioned previously, new column radiators were installed in the left side and right side reception rooms at the front of the house at ground floor level, a total of six column radiators, one under each window.

The routing of new flow and return pipes to and from new radiators can be fraught in old houses. In this case, the pre-existing duct in the corner of the western stairwell was enlarged slightly to accommodate the pipes instead of making a new duct and the overall run of pipe work was reduced from that originally specified.

(5) There are 3 zones for the new central heating system. Zone 1 includes the ground floor and first floor levels of the front block - the reception area, entrance and training rooms. Zone 2 includes the offices, kitchen, dining room, aftercare office, green room and aftercare – essentially the back of the house. Zone 3 is the hot water supply. The controls for the heating system are to be placed in the Financial Administration office. The main thermostats were placed in Zone 1 behind reception and in Zone 2 in the main Administration area.

(6) Door closers were fitted to the doors to the kitchenette and auditorium and to the staff offices to retain the heat in these spaces.

Conservation Strategy and Method Statement

The building has been surveyed, recorded and the relevant historical documents have been researched as part of South Dublin County Council's Heritage Plan 2011 - 2015. South Dublin County Council has ensured that the works described above were carried out by a contractor with proven competence in the specified works.

Conservation Impact Assessment

The intervention which was likely to be the most destructive of the existing built fabric was the lifting of the existing floorboards to accommodate the flow and return pipes to and from the existing and new boilers to the new radiators in each room. However the floor boards in the late-Georgian block were unusually thick and were easily lifted and reinstated without causing any damage to the existing boards. Also the ground floor of the older rere part of the house had already been disturbed previously during the last three decades and so the impact on historic fabric there was minimal. The new boiler vents to a flue terminal and a hole was made through the external wall at the back of the older rere block to allow this.

The longer term strategy to insulate the external walls at some time in the future is also intrusive and would change the external appearance of the less important facades, the depth of window reveals and roof overhangs. However many of the existing internal finishes in the house date from the refurbishment works of the late 1980's. None of the original first-floor level timbers, decorative ceiling plasterwork or wall finishes in the late Georgian block survived the fire in the mid 1980's and the refurbishment works which followed. Therefore the impact on historical fabric would be minimal and the intervention would be reversible; the insulation could be removed at a later date if desirable.

Overall the works carried out have had a limited material affect on this important building but were necessary to make the continued use and enjoyment of the building more economical.

Statutory Protections

South Dublin County Council's Architectural Services department consulted with the council's Conservation Officer on all aspects of the proposed works. It was considered that the works did not materially affect the character of the Protected Structure and were therefore exempted development.

Appendix 1 Radiator Schedule

The proposed new radiators have been sized according to the designed output needed. The radiator schedule below is based on the "Myson Select Compact Range":-

Grd. Flr. Location	**Code**	**Output**	**Q'tity**	**Type**	**Size**
Entrance hall	SS 60 200G	1932W	1	single convector	2000mm x 600mm
Left side reception room	SX 60 1609	2168W	3	double panel single convector	1600mm x 600mm
Right side reception room	SX 60 1609	2168W	3	double panel single convector	1600mm x 600mm
Staff kitchen	SS 60 160G	1546W	1	double panel single convector	1600mm x 600mm
Staff canteen		1350W	2	2 column rads, total 2700W	
Office between stairwells		2200W	1	1 column radiator	
2 ground floor corridoors	SS 60 10G		2	single convector type 11G	1100mm x 600mm
Disabled person's WC	SS 60 70G	676W	1		600mm x 700mm
First. Flr. Location	**Code**	**Output**	**Q'tity**	**Type**	**Size**
Large training room (50 sq.m.)	SD 30 180G	1739W	3	single convector	1800mm x 300mm
Front training room (19 sq.m.)	SD 40 180G	2218W	1	double convector type 22G	1800mm x 400mm
Front training room (16.7 sq.m.)	SD 40 180G	2218W	1	double convector type 22G	1800mm x 400mm
Front training room (21.8 sq.m.)	SD 40 140G	1725W	2	double convector type 22G	1400mm x 400mm
Staff office (14.4 sq.m.)	SD 30 140G	1352W	1		1400mm x 300mm
Staff office (8.3 sq.m.)	SS 30 140 G	525W	1		1000mm x 300mm
Staff office (6.6 sq.m.)	SS 30 140 G	525W	1		1000mm x 300mm
Staff office (15.6 sq.m.)	SD 40 140 G	1725W	1	double convector type 22G	1400mm x 400mm
Back training room (31.2 sq.m.)	SD 30 180G	1739W	2	double convector type 22G	1800mm x 300mm

The total combined output of the proposed new radiators is 42,770W or 43kW. Allowing for an additional 6kW to provide 3kW to each of the two existing hot water cylinders, a total output of approximately 50kW is required in the house, allowing for the reduction in heat loss by the other measures described previously. A new boiler is therefore proposed to supply 25kW which cannot be provided by the existing boiler. The existing boiler has some spare capacity to heat some of the proposed radiators in the nearby rooms.

Appendix 2 Photographs of the completed works

The following photographs were taken in November 2013 after the works were completed.

The two fireplaces in the large reception rooms on either side of the main entrance to Kiltalown house with the proprietary damper system installed. The small mild steel handle is just visible at the top of each fireplace opening.

A close-up view of the manually operated proprietary damper supplied and installed by “Chimney Draught Stop Ltd.”


Left side: The gas mains extension behind the house. Right side: The repaired and boxed in waste water pipe in the toilets


Left side: The new central heating pipes at the east end of the house. Right side: The very old door from the kitchenette and living room to the courtyard.

Maintenance schedule

The table below shows how the building might be easily inspected and maintained by an ordinary person without any expertise in building conservation or maintenance and without any need for specialist equipment.

Building element	Description	Recommended maintenance	Regularity of maintenance	Comments
Roof structure and covering	Tile covered pitched roofs	Visual inspection of tiles, lead flashings & mortar with binoculars from ground level.	Once a year ideally at the same time each year.	Take photos of any damage or fault identified, for comparison purposes
Chimneys and vents	Brick chimneys above the former robbing room and the courtroom	Monitor for any cracking & mortar erosion and organic colonisation	Once a year ideally after winter	
Rainwater goods	Cast iron rainwater gutters and down pipes. Also inspect the cast iron soil vent pipe	Clear out debris, twigs, leaves and dead birds from gutters and check that they are securely fixed. Clean out debris from gullies[19]	At least once a year, ideally after leaf fall, at the end of November	This maintenance is particularly important. Check also after any very heavy rainfall or snow
Windows and doors	Timber framed casement and sash windows	Check operation and condition of frames, putty, glazing and paint	At least once a year, ideally in late winter	
Services	Emergency lighting, alarm systems, etc.	Check operation and condition (visual only) [20]	Log books to be updated quarterly.	Quarterly
Others	Identify and note any defects, damage or problems in the building. Remove any rubbish, debris or waste from the site. Kill and remove any vegetation growing in or next to the building. Refer to manufacturer's instructions of any systems or mechanical fittings			

[19] NOTE Broken glass and used hypodermic syringes can be found in drainage gullies, so manually clearing them out should only be done with a suitably resistant glove.
[20] Electrical systems should be checked by a qualified person at least once every 5 years.

DOMESTIC PREMISES GAS INSTALLATION
DECLARATION OF CONFORMANCE FOR BOILER REPLACEMENT WHERE A METER/GAS IS ALREADY SUPPLIED

CERT 2

REGISTERED RGI GAS INSTALLER

NOTE: THIS IS A SAFETY RELATED DOCUMENT AND NOT AN INVOICE/RECEIPT

No. BR 53321

Please complete in BLOCK CAPITALS

LOCATION OF PREMISES

GPRN

ADDRESS Kiltalown House
Kiltalown Tallaght
Dublin

CUSTOMER NAME

TEL. NO.

NAT GAS ☑ L P GAS ☐

ALL DETAILS REQUESTED MUST BE PROVIDED. ONLY THE REGISTERED GAS INSTALLER (RGI) RESPONSIBLE FOR CARRYING OUT THE INSTALLATION & TESTS CAN SIGN THIS DECLARATION.

OWNER OF PREMISES DETAILS

NAME

ADDRESS Kiltalown House
Kiltalown Tallaght
Dublin

TEL. NO.

Appliance Installed Central Heating ☑

Appliance Flue Type Open ☐ R.Seal ☑

Make POTTERTON

Model SIRUS WH 50

Others

Pipework Material: Copper ☑ CSST ☐ Other ☐

APPLIANCE LOCATION CORRECT ☑

ADEQUATE PERMANENT VENTILATION ☑

FLUE GAS ANALYSIS: Co 17 ppm Co_2 8-3 % Co/Co_2 Ratio 0.0004

FLUE INSPECTED AND ADEQUATE ☑

SOUNDNESS TEST PASS ☑

DECLARATION OF INSTALLATION, APPLIANCE COMMISSIONING SAFETY & CONFORMITY

I HEREBY DECLARE, UNDER MY SOLE RESPONSIBILITY & BEING COMPETENT TO DO SO;

- THAT ALL REQUIREMENTS OF I.S. 813/I.S. EN 1949 & ALL MANUFACTURERS REQUIREMENTS FOR INSTALLING, COMMISSIONING TESTING AND PUTTING INTO SERVICE THE ABOVE APPLIANCES HAVE BEEN MET
- THAT A WRITTEN OPERATING INSTRUCTION HAS BEEN PROVIDED WITH EACH APPLIANCE
- THAT THE CUSTOMER WAS INSTRUCTED IN THE SAFE USE AND OPERATION OF THE APPLIANCES
- THAT ALL REQUIREMENTS OF I.S. 813/I.S. EN 1949 FOR INSTALLING & TESTING OF THE INSTALLATION PIPEWORK HAVE BEEN MET
- THAT THE INSTALLATION PIPE WORK IS SOUND
- THAT THE INSTALLATION AT THIS PREMISES/LOCATION IS SAFE TO CONTINUE TO USE GAS.

NOTE: THIS DOCUMENT IS A COMPLETION CERTIFICATE FOR THE PURPOSE OF THE ENERGY (MISCELLANEOUS PROVISIONS) ACT 2006

Company Number: R0111 Trainee Number: Trainee Signature:

RGI Name: RAMOR RENEWABLES (BLOCK CAPITALS) RGI Number: R0111 Signed:

Date of Test: 4/11/13 Date of Issue: 8/11/13 RGI Tel No: 086 2907963

Notice of Hazard issued YES ☐ NO ☐ Hazard No. Reason

HOUSEHOLDER IMPORTANT SAFETY INFORMATION PLEASE READ CAREFULLY

THIS DECLARATION CONFIRMS TO YOU THE HOUSEHOLDER, THAT THIS INSTALLATION IS SAFELY INSTALLED IN CONFORMANCE WITH IRISH STANDARD 813 "DOMESTIC GAS INSTALLATIONS"/I.S. EN 1949.

THE PERSON WHO ISSUES THIS DECLARATION ACCEPTS SOLE RESPONSIBILITY FOR ITS ACCURACY.

AFTER COMMISSIONING, THE SAFE OPERATION AND MAINTENANCE OF THIS INSTALLATION FROM THE METER OR LPG CYLINDERS/TANK VALVE INWARDS IS THE SOLE RESPONSIBILITY OF THE HOUSEHOLDER.

GAS APPLIANCES MUST BE SERVICED ANNUALLY FOR THE SAFE AND EFFICIENT OPERATION OF YOUR APPLIANCES PLEASE REFER TO APPLIANCE USER INSTRUCTIONS.

FOR YOUR REASSURANCE AND SAFETY PLEASE ENSURE YOU ARE ABLE TO OPERATE THE EMERGENCY SHUT OFF VALVE WHICH IS LOCATED AT / GAS METER

COPIES: **WHITE** – CUSTOMER **GREEN** – RETURN TO RGII **BLUE** – COPY FOR YOUR RECORDS

PTO

DOMESTIC PREMISES GAS INSTALLATION
DECLARATION OF CONFORMANCE FOR BOILER REPLACEMENT WHERE A METER/GAS IS ALREADY SUPPLIED

REGISTERED RGI GAS INSTALLER

NOTE: THIS IS A SAFETY RELATED DOCUMENT AND NOT AN INVOICE/RECEIPT

No. BR 03823

Please complete in BLOCK CAPITALS

LOCATION OF PREMISES

GPRN

ADDRESS Kiltalown House
Kiltalown Tallaght
Dublin

CUSTOMER NAME

TEL. NO.

NAT GAS ☑ L P GAS ☐

ALL DETAILS REQUESTED MUST BE PROVIDED. ONLY THE REGISTERED GAS INSTALLER (RGI) RESPONSIBLE FOR CARRYING OUT THE INSTALLATION & TESTS CAN SIGN THIS DECLARATION.

OWNER OF PREMISES DETAILS

NAME

ADDRESS Kiltalown House
Kiltalown Tallaght
Dublin

TEL. NO.

Appliance Installed — Central Heating ☑ — Make Potterton — Model Sirus wh 50

Appliance Flue Type — Open ☐ R.Seal ☑

Others

Pipework Material: Copper ☑ CSST ☐ Other ☐

APPLIANCE LOCATION CORRECT ☑ **FLUE INSPECTED AND ADEQUATE** ☑

ADEQUATE PERMANENT VENTILATION ☑ **SOUNDNESS TEST PASS** ☑

FLUE GAS ANALYSIS: Co 17 ppm Co_2 8-3 % Co/Co_2 Ratio 0.000

DECLARATION OF INSTALLATION, APPLIANCE COMMISSIONING SAFETY & CONFORMITY

I HEREBY DECLARE, UNDER MY SOLE RESPONSIBILITY & BEING COMPETENT TO DO SO;

- THAT ALL REQUIREMENTS OF I.S. 813/I.S. EN 1949 & ALL MANUFACTURERS REQUIREMENTS FOR INSTALLING, COMMISSIONING TESTING AND PUTTING INTO SERVICE THE ABOVE APPLIANCES HAVE BEEN MET
- THAT A WRITTEN OPERATING INSTRUCTION HAS BEEN PROVIDED WITH EACH APPLIANCE
- THAT THE CUSTOMER WAS INSTRUCTED IN THE SAFE USE AND OPERATION OF THE APPLIANCES
- THAT ALL REQUIREMENTS OF I.S. 813/I.S. EN 1949 FOR INSTALLING & TESTING OF THE INSTALLATION PIPEWORK HAVE BEEN MET
- THAT THE INSTALLATION PIPE WORK IS SOUND
- THAT THE INSTALLATION AT THIS PREMISES/LOCATION IS SAFE TO CONTINUE TO USE GAS.

NOTE: THIS DOCUMENT IS A COMPLETION CERTIFICATE FOR THE PURPOSE OF THE ENERGY (MISCELLANEOUS PROVISIONS) ACT 2006

Company Number: R0111 Trainee Number: Trainee Signature:

RGI Name: RAMOR RENEWABLES (BLOCK CAPITALS) RGI Number: R0111 Signed: Shane O Reilly

Date of Test: 4/11/13 Date of Issue: 8/11/13 RGI Tel No: 086 2907963

Notice of Hazard issued YES ☐ NO ☐ Hazard No. Reason

HOUSEHOLDER IMPORTANT SAFETY INFORMATION PLEASE READ CAREFULLY

THIS DECLARATION CONFIRMS TO YOU THE HOUSEHOLDER, THAT THIS INSTALLATION IS SAFELY INSTALLED IN CONFORMANCE WITH IRISH STANDARD 813 "DOMESTIC GAS INSTALLATIONS"/I.S. EN 1949.

THE PERSON WHO ISSUES THIS DECLARATION ACCEPTS SOLE RESPONSIBILITY FOR ITS ACCURACY.

AFTER COMMISSIONING, THE SAFE OPERATION AND MAINTENANCE OF THIS INSTALLATION FROM THE METER OR LPG CYLINDERS/TANK VALVE INWARDS IS THE SOLE RESPONSIBILITY OF THE HOUSEHOLDER.

GAS APPLIANCES MUST BE SERVICED ANNUALLY FOR THE SAFE AND EFFICIENT OPERATION OF YOUR APPLIANCES PLEASE REFER TO APPLIANCE USER INSTRUCTIONS.

FOR YOUR REASSURANCE AND SAFETY PLEASE ENSURE YOU ARE ABLE TO OPERATE THE EMERGENCY SHUT OFF VALVE WHICH IS LOCATED AT / GAS METER

COPIES: WHITE – CUSTOMER **GREEN** – RETURN TO RGII **BLUE** – COPY FOR YOUR RECORDS FTO

ECSSA REGIST

Declaration of Compliance with ET101 (Current Edition) for Minor Electrical Installation Works

THIS CANNOT BE USED TO OBTAIN ELECTRICITY SUPPLY FROM THE DISTRIBUTION SYSTEM OPERATOR

To be used only for minor alterations to existing electrical installations. (See ET101 Annex 63B for details).

MPRN 10002373714

No: ED 520953

CUSTOMER NAME (Block Capitals): KILTALOWN HOUSE **DATE:** 20-11-13

ADDRESS OF INSTALLATION (Block Capitals): TALLAGH, DUBLIN 24

DESCRIPTION OF MINOR ELECTRICAL WORK CARRIED OUT: NEW HEATING CONTROLS - NEW IMERSION FITTED

NUMBER OF: **LIGHTING POINTS** 0 **SOCKET OUTLETS** 0 **FIXED APPLIANCES** 2

OTHER WORKS Lights in big room wired properly.

COMMENTS: These lights were moved previous and were not correctly wired.

TESTS (for Minor Work Completed) Insert Test Values or tick as appropriate

MIN. INSULATION RESISTANCE	27 MΩ	POLARITY AND EARTHING VERIFIED	Yes ✓	RESISTANCE OF PROTECTIVE CONDUCTOR	.41 Ω
FAULT LOOP IMPEDANCE	.03 Ω	AND	RATING & TYPE OF ASSOCIATED PROTECTIVE DEVICE		63 A B
TRIP TIME 30mA RCD AT 30mA	30 ms	EQUIPOTENTIAL BONDING VERIFIED	Yes ✓	N/A	

DECLARATION

I declare that the minor electrical installation work at the above address has been constructed and tested in accordance with the National Rules for Electrical Installations (current issue at date of contract) published by the Electro-Technical Council of Ireland and has been found to be satisfactory and that the said works do not impair the safety of the existing installation.

REGISTERED CONTRACTOR (Block Capitals)

NAME: ADRIAN MC CABE

ADDRESS: CLADDAGH, BALLYJAMESDUFF CAVAN

SIGNED: [signature]

QUALIFICATION: Electrician

DATE: 29-3-14

PHONE: 087 6263329

Reg. No. 32679

EXISTING INSTALLATION

General comments on existing installation, including adequacy of existing protective devices, earthing and bonding arrangements.
WARNING: The upstream part of the existing installation to which the new minor works is connected must comply with ET101 (Current Edition).

COMMENTS: All up to standard All RCBO's & TRIPS IN GOOD ORDER. All BONDING IN GOOD ORDER

REVISIONS DRAWN IN RED, AS PER MEETING OF 21/10/2013

The existing flue is blocked up and sealed. A vent grille is to be fitted o prevent the build up of moisture in the flue. the same applies to the blocked up fireplace in the staff dining room, the disabled person's toilet - 3 fire places in total. Also cowls are to be fitted to the tops of all the the chimney pots to limit rainwater ingress into the flues.

These two flues and open fireplaces are not sealed, are open and ventilated. Each is to be fitted with a new proprietary hand-operated, mild steel damper by "Chimney Draught Stop Excluder Ltd." or equivalent approved.

The attic above the rere, older block has a cavity around the edge, above the coved part of the ceilings - shown with a dashed line. The width of the coved section is approx 500mm. Any blown fibre insulation is to be hoovered out of the existing cavity above the coved part of the ceiling. All all the cavities between the roof space and the coved ceilings are to be insulated with a 50mm thick hemp board, cut to size and slid down between the rafters leaving a clear a minimum 50mm clear ventilation space above.

The existing attic hatches are to be removed and replaced with a new proprietary insulated and draught sealed attic hatch doors, fitted with fold-down ladder to facilitate future access to and from the attic spaces. Details: Manufacturer: An Irish company called "Redmond" used to supply ready-made insulated and draught sealed attic hatches. Insulated attic hatch door fitted with an upper draught seal at all 4 edges. Handle to be fitted to facilitate opening and closing. Finish:- 2 coat oil-based paint on a base coat on a primer

The attic above the room at the south-western end of the rere roof (shown with a dashed red line) is not insulated. The existing temporary floor of ply sheeting is to be lifted and 150mm thick sheepswool quilt is to be laid between the existing joists. The sheeting is to be reinstated on small shims screwed to the tops of the joists.

The attic above the late Georgian front block is insulated with a blown fibre insulation. This insulation is to be evenly spread out over the horizontal joists of the attic space with a garden rake or similar implement. All stored materials, boxes etc. are to be taken down from the attic

The attic above the late Georgian front block has a cavity around the edge, above the coved part of the ceilings - shown with a dashed line. The width of the coved section is approximately 500mm. Any blown fibre insulation is to be hoovered out of the existing cavity above the coved part of the ceiling. All all the cavities between the roof space and the coved ceilings are to be insulated with a 50mm thick hemp board, cut to size and slid down between the rafters leaving a clear a minimum 50mm clear ventilation space above.

PUMP ON BOTH BOILERS.

EXISTING BOX DUCT TO BE ENLARGED TO ACCOMMODATE CENTRAL HEATING PIPES

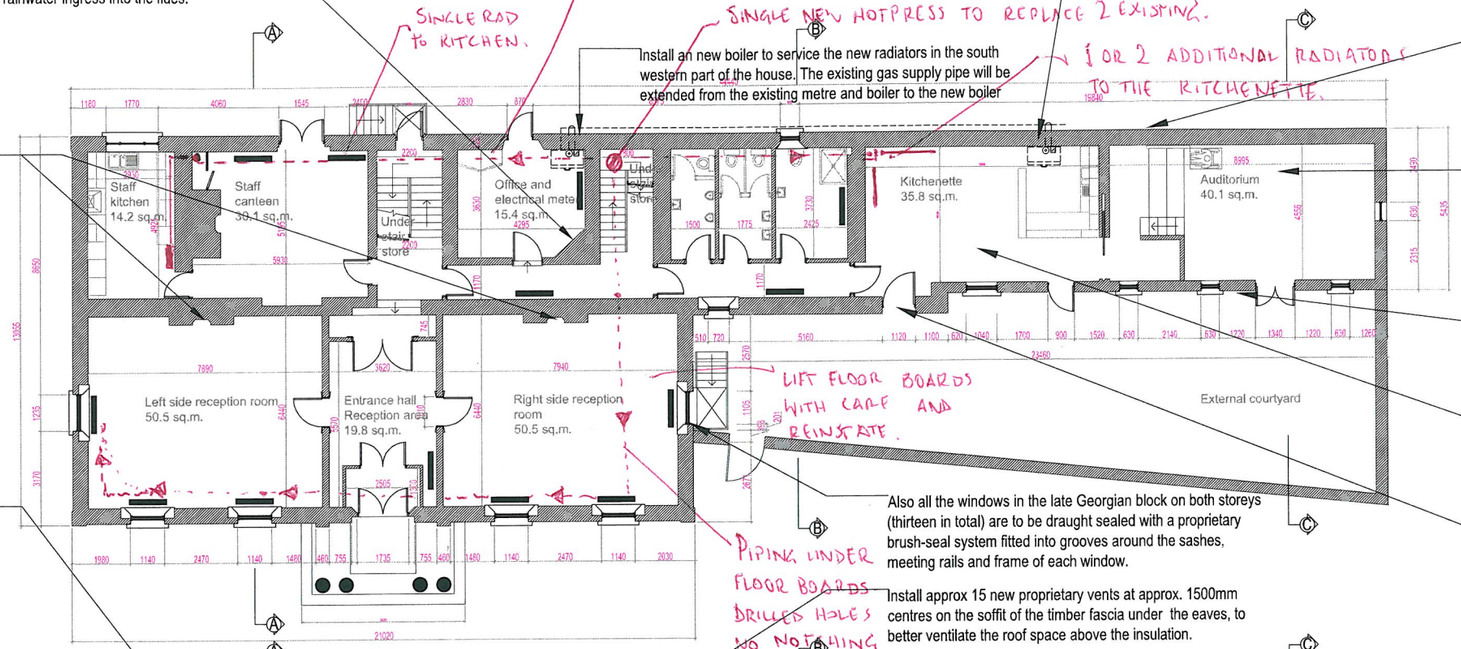
SINGLE RAD TO KITCHEN.

SINGLE NEW HOTPRESS TO REPLACE 2 EXISTING.

1 OR 2 ADDITIONAL RADIATORS TO THE KITCHENETTE.

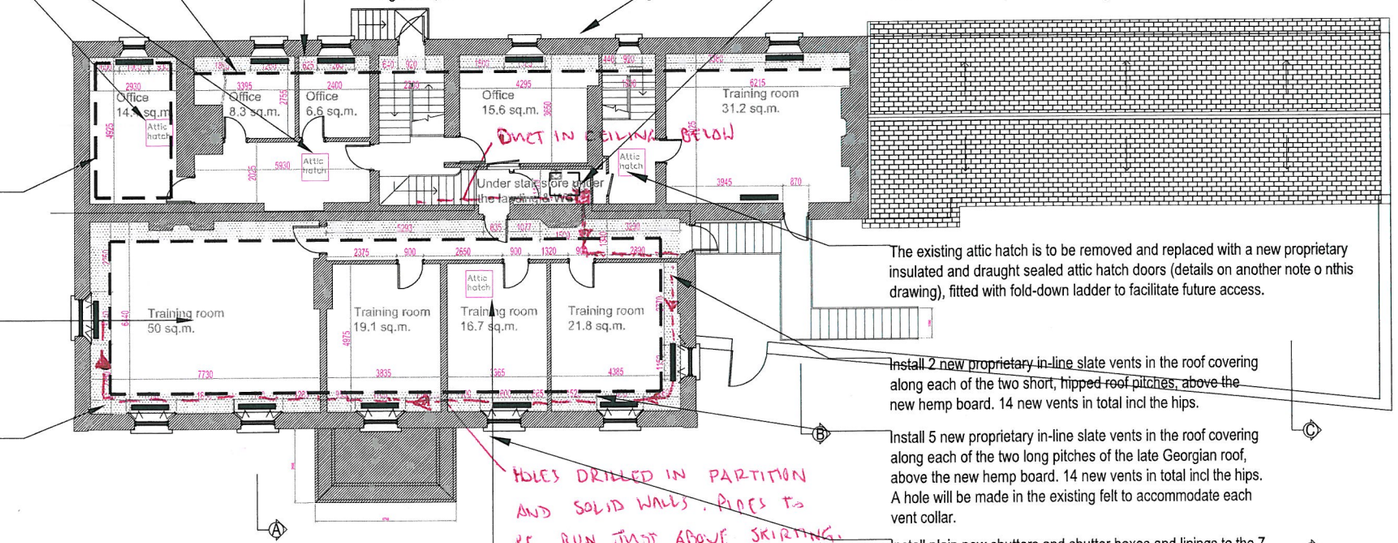
Install an new boiler to service the new radiators in the south western part of the house. The existing gas supply pipe will be extended from the existing metre and boiler to the new boiler

The existing boiler only provides hot water to the under-floor heating in the refurbished former stables, now a kitchenette and auditorium. The boiler is a "Ferrolli HE 25S Domestic Boiler ", is oversized and has spare capacity to supply hot water to some of the proposed new radiators for the nearby rooms



GROUND FLOOR PLAN

The existing walls to be insulated / dry-lined with an internal lining board, as noted elsewhere on this drawing



FIRST FLOOR PLAN

The existing attic hatch is to be removed and replaced with a new proprietary insulated and draught sealed attic hatch doors, fitted with fold-down ladder to facilitate future access to and from the attic spaces

Also all the windows in the late Georgian block on both storeys (thirteen in total) are to be draught sealed with a proprietary brush-seal system fitted into grooves around the sashes, meeting rails and frame of each window.

Install approx 15 new proprietary vents at approx. 1500mm centres on the soffit of the timber fascia under the eaves, to better ventilate the roof space above the insulation.

The existing steel cold water storage tank is in the cold zone above the attic insulation. It is to be removed and replaced with a new insulated uPVC tank, large domestic size.

The existing attic hatch is to be removed and replaced with a new proprietary insulated and draught sealed attic hatch doors (details on another note o nthis drawing), fitted with fold-down ladder to facilitate future access.

Install 2 new proprietary in-line slate vents in the roof covering along each of the two short, hipped roof pitches, above the new hemp board. 14 new vents in total incl the hips.

Install 5 new proprietary in-line slate vents in the roof covering along each of the two long pitches of the late Georgian roof, above the new hemp board. 14 new vents in total incl the hips. A hole will be made in the existing felt to accommodate each vent collar.

Install plain new shutters and shutter boxes and linings to the 7 existing windows at first floor level of the late Georgian block, as per detail drawing number T06. Also each window is to be draught sealed with a proprietary brush-seal system fitted into grooves around the sashes, meeting rails and frame.

Install 6 new proprietary vents at approx.1500mm centres on the soffit of the timber fascia under the eaves of the north-western facade, to better ventilate the roof space above the insulation.

The roof of the auditorium:- The existing plaster board finished coved ceiling will be retained. A new insulated coved ceiling will be built under the existing ceiling and roof of the auditorium, studded out with timber battens which support a new insulated ceiling, 50mm thick rigid hemp board insulation with vapour membrane below and twice skimmed plasterboard underneath

Install 6 new proprietary vents at 1500mm centres on the soffit of the timber fascia under the eaves of the former stable block, to better ventilate the roof space above the insulation

The roof of the kitchenette:- A new horizontal or flat, skimmed plasterboard ceiling will be built to the underside of the existing exposed joists or ties in the kitchenette and 150mm thick sheepswool insulation quilt laid between the joists.

The emergency exits are to be fitted with a proprietary brush-seal system built into their frame or door leaves. This includes the twin doors at the main entrance to the house, the door to the garden from the landing on the south-westerly stairwell, the door from the kitchenette to the courtyard, the door from the auditorium to the courtyard and the two doors at first floor level which access the emergency escape stairs at the north-east end of the house - in total seven doorsets.

NOTES ON THE NEW CENTRAL HEATING INSTALLATION.

1. The existing 24 electrical storage heaters will be removed and recycled. 26 new radiators will be installed to the sizes indicated on the schedule attached. All new radiators will be fitted with thermostatic radiator valves. The flow and return pipes will be run along the floor structure of the first floor landing - corridoor, and will drop to the ground floor radiators in the rere of the house. The pipes will be run in the raised suspended timber floor of the ground floor of the late Georgian block and surface mounted to the walls of the first floor of this block.
2. A new high efficiency 25kW condensing boiler ("Worcester Greenstar Cdi" or equivalent approved) will be installed at the position shown on this drawing. This will be supplied with gas from a 16m long extension to the existing supply pipe which has sufficient capacity.
3. The existing Ferrolli HE 25S Domestic Boiler which drives the under floor heating to the kitchenette and auditorium is oversized and has spare capacity to supply hot water to some of the proposed new radiators for the nearby rooms.
5. The new central heating system will be divided into two zones, one for the staff offices and training rooms which are, respectively continually and regularly occupied and the other for the remainder: the less often used training rooms, the kitchen, canteen, disabled person's toilet and corridors.
6. New door closers will be fitted to the doors to the kitchenette and auditorium and to the staff offices to retain the heat in these spaces.

KEY TO SYMBOLS USED

- Proposed new hemp board insulation above coved ceilings
- Proposed new window shutters, boxes and linings
- Proposed new radiators with TRVs (refer to schedule)
- Edge of coved ceilings

Comhairle Contae Átha Cliath Theas
South Dublin County Council

ARCHITECTS' DEPARTMENT,
COUNTY HALL, TALLAGHT, DUBLIN 24
TEL: 01-414 9000, FAX: 01-414 9209

COUNTY ARCHITECT
EDDIE CONROY, B.Arch., M.Sc.Arch., FRIAI

No.	DATE

SCALE:- 1:200

DATE:- September 2012

DRAWN:- FÓS

PROJECT TITLE: KILTALOWN HOUSE, THERMAL UPGRADE WORKS

DRAWING TITLE: FLOOR PLANS - AS PROPOSED

SENIOR ARCHITECT: PATRICK DE ROE

PROJECT ARCHITECT: FEARGAL Ó SÚILLEABHÁIN

DRAWING. NO: 12018_T04

REV.