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Building Conservation Asset and Facilities Management

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Introduction

I have been asked to identify and undertake a detailed case study of two substantial built assets of over 500m^2 floor area, one of which is to be a building protected by statutory listing and of traditional, solid construction. The other is to be a much newer building of cavity construction. I will assess them against the learning outcome criteria to compare and contrast how each building will be assessed, managed and maintained in terms of on-going maintenance and repairs. Differences in how each building is maintained will be referred to throughout the assignment.

A house purchase is the singularly most expensive purchase we make during our lifetime so why, once we have purchased such an expensive asset, we fail to recognise the importance of repair and maintaining such an expensive item. This of course does not just relate to house purchase but any built asset.

There are many definitions of what 'repair and maintenance' is and what the term means to different people. Maintenance can be defined simply as an activity like cleaning, painting and or carrying out minor repairs on a regular basis as part of a cyclical programme, either annually or every 3-5, 10, 15 or even 20 years.

Maintenance is defined in BS 7913: as

> *'Routine work necessary to keep the fabric of building…. In good order'*. (Edwards, 2013)

Maintenance of an historic building is most beneficial in conservation terms when it is preventative as the intention is to reduce or avoid the need for the repair, preventing the loss of the original fabric. (Maintenance of Heritage, 2004).

Clear differences of how a building is maintained are apparent, none moreso than one having the label of a 'listed building'. For a building to be included on the listed building register, it must be of 'special architectural or historical importance'. The loss or damage of such a building/asset, therefore, should be avoided. Once a listing has been made it will significantly influence how the owners, occupiers, agents or users of an historic asset should care for and maintain the property. (CADW, 2017) (Managing Heritage Impact Assessment in Wales).

Listed Buildings

> "Historic buildings are a precious part of our heritage. They help to create Wales's distinctive character and contribute to our identity and sense of place. They are important to our quality of life and help us to understand our history. They also promote a positive image of Wales across the world" (CADW, 2018).

Listed buildings (*designated* heritage assets) within Wales are separated into three categories but all are treated the same in the planning system. Planning (Listed Buildings and Conservation Area) Act 1990.

Grade I – Buildings of exceptional interest and most rare as they only make up a very small percentage of all listed buildings, approximately 2% across Wales.

Grade II* - Particularly important buildings of more than special interest that make up around 7% of the listed buildings in Wales.
Grade II - Buildings of special interest which justify every effort being made to preserve them. (CADW.2018).

The listing of buildings is always done on an individual basis and will always be assessed against the following criteria.

- Architectural interest
- Historical interest
- Close historical associations
- Group value
- Age and rarity
- Local listing

Although a building or structure does not necessarily need to be old to be listed, it could be unique or one-of-a-kind which will cause it to be listed. Once a building or structure has been listed it provides additional protection, ensuring its importance is understood and encouraging it to be maintained and cared for in a sympathetic way which enhances or retains its original form. Buildings can deteriorate quicker due to a lack of understanding of how they are intended to function so, when a building is identified as being of importance, and its loss would be significant, either due to its prominence or workmanship, it must be cared for and looked after in the correct way.

Once a building has been listed, any changes intended need to be approved following an application for listed building consent (LBC). An application for LBC is made to the local authority and usually assessed by the conservation officer or specialist planner who understands the importance of conserving the building or structure. The repair and maintenance of a traditional listed building will differ to that of a modern building insomuch as the process and materials for repair but also skilled labour. A listed building pre1919 will generally be built using traditional methods and materials that are seen more often in today's market as 'specialist or conservationist' work. This results in a higher cost for the services provided, as there are a limited pool of traditional-skilled workforce available.

Legislation and Planning Policies – Listed Buildings & Monuments & Conservation Areas

A number of Acts have been combined within Wales to further ensure stringent policies and procedures are followed in terms of how listed buildings are cared for and looked after. The principal policy affecting listed buildings and monuments is the Town and Country Planning Act 1990 and the Planning and Compulsory Purchase Act 2004. All related functions and powers have been transferred to the National Assembly for Wales via the National Assembly for Wales (Transfer of Functions) order 1999. The

transfer of functions and powers has allowed the creation of further policies and specific legislation that is solely used in Wales via the Government of Wales Act 2006 which, in turn, allowed the enactment of the Planning (Wales) Act 2015 and The Historic Environment (Wales) Act 2016. Extended powers of the National Assembly under section 37, permit urgent work to be undertaken deemed as necessary to preserve them. The act also provides the power to recover the cost of the urgent work from the owner and failure to pay can result in a charge being placed on the building that can be recovered via the land tax.

Technical Advice Note 24 (TAN24), produced in 2017, supports current policies and procedures outlining guidance on best practice when working within the confines of the historic environment. When working with a listed building, such as Llanelly House, any changes to the building will require supporting documentation such as a 'Heritage Statement' or 'Statement of Significance', Heritage Impact Assessment or simply a 'justification statement'. All of the documents serve the same purpose to explain the importance of the structure by detailing why it is important or significant, and any changes, modifications or alteration that will either enhance the existing or may have minimal impact. (Savills, 2020)

The protection of listed buildings is of paramount importance therefore, any changes to a building or monument or any works to be undertaken that might affect such a building are required by law to have the accompanying documentation supplied with any submissions made to local authority planning. The purpose of a Heritage Statement is set out in paragraph 128 of the National Planning Policy Framework, (NPPF) 2012.

> *"In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance". (Appendix 5 – Guidance for preparing a heritage statement, n.d)*

Any owner or representative can complete a Heritage Statement as long as they show a full understanding of the significance of the structure and its environment. If NPPF is used along with relevant guidance, the local planning department will ensure they have the necessary information provided before making decisions on applications. Often the process can take time with many questions and clarification sought in support of the application. The conservation officer within the planning department will also make site visits before any works are started or signed off as complete.

> *"It is a criminal offence to demolish, alter or extend a listed building in any way that affects its character as a building of special architectural or historic interest unless you have listed building consent"* (understanding listings, CADW.Gov, 2021).

The Burra Charter (Conservation of Australian Heritage Places) set the standard for conservation of a building. It states that conservation:

'requires a cautious approach of changing as much as necessary but as little as possible' (Burra Charter, 2013)

Llanelly House – Llanelli

History

Llanelly house occupies a corner plot at 2 Vaughan St and Bridge St, the building dates from 1714, the early Georgian period, and is grade I listed, having been listed in 1966 and amended in 1992 – ref 11892 (CADW, listed buildings). There are a number of buildings and monuments within close proximity and adjacent to the house that have also been listed, mainly grade II, but offering an area within the town that is seen to be significant enough to retain and reflect on its history. Much of the built environment has changed within the wider townscape which only serves to highlight the importance of retaining heritage assets, designated or not, as they provide a significant part of the town's character and history.

Originally, Llanelly house was built for Sir Thomas Stepney (1688-1744) who acquired the estate through marriage. The house appears to have been built on the site of an earlier monastery and it is likely that stone from the earlier structure was used to build at least part of the house. Little is known about the early part of the estate's history as it is thought the house and estate fell into a state of disrepair before being purchased circa 1825 by William Chambers, founder of the South Wales Pottery 1839. (Britishlistedbuildings.co.uk, 2021).

Throughout its life, long periods of neglect have occurred however, it has managed to retain some of its original features making it an excellent example of workmanship of its period. The retention of the original features could simply be due to the quality of materials used at the time of construction or during any subsequent repairs and, of course, combined with superb craftsmanship.

The building was first listed in 1966. During its life, Llanelly house had not been well looked after during its many changes of use. After its use as a country house, it was sold around the 1850's becoming flats then a mixed-use building with flats on the upper floors and retail on the ground floor at both Bridge St and Vaughan Street. It is thought the mixed use took place prior to 1900 and remained until 1970. The retention of some of its finest features, for example the fine timber Georgian windows and its exquisite panelling in the dining room, might simply have been due to the protection afforded by being listed for over 50 years, rather than any careful attention to repair and maintenance in recent times.

The building is currently used as a wedding and conference venue with restaurant and café. Over the years it is clear to see the land that surrounded the house, like many other country houses of its period, become smaller as the grounds surrounding it are sold. As the property stands now, it does not have any land or gardens and is accessed directly from the street. This can cause issues for its sustained use and flexibility for future use. It is highly unlikely the house would ever become a family home again due to the lack of land, garden or even parking which are current

expectations. So, as the footprint of the estate shrinks, so does its flexibility almost certainly remaining solely within its commercial setting.

Refurbishment 2008

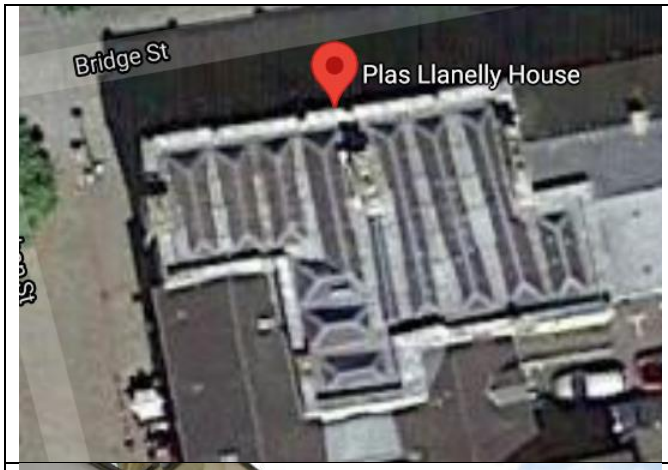
During refurbishment/conservation works between 2008-2013 involving the opening up of the floors and walls to determine the presence of decay, significant archaeological artifacts were discovered. Findings from below the current ground floor were found from the 15th century including architectural mouldings, all findings being recorded by Archaeology Wales. It could be assumed that the wider building plot has similar archaeological artifacts, but it is unlikely these will be uncovered as they are currently beneath the adjacent public footpaths. Should any additional works be carried out in the vicinity, however, additional time should be allowed for an examination of archaeology as this could impact on time so financial implications should the site become of archaeological interest.

The following photograph schedule examines mostly the external fabric in terms of maintenance and repairs:

Llanelly house – Photo Schedule

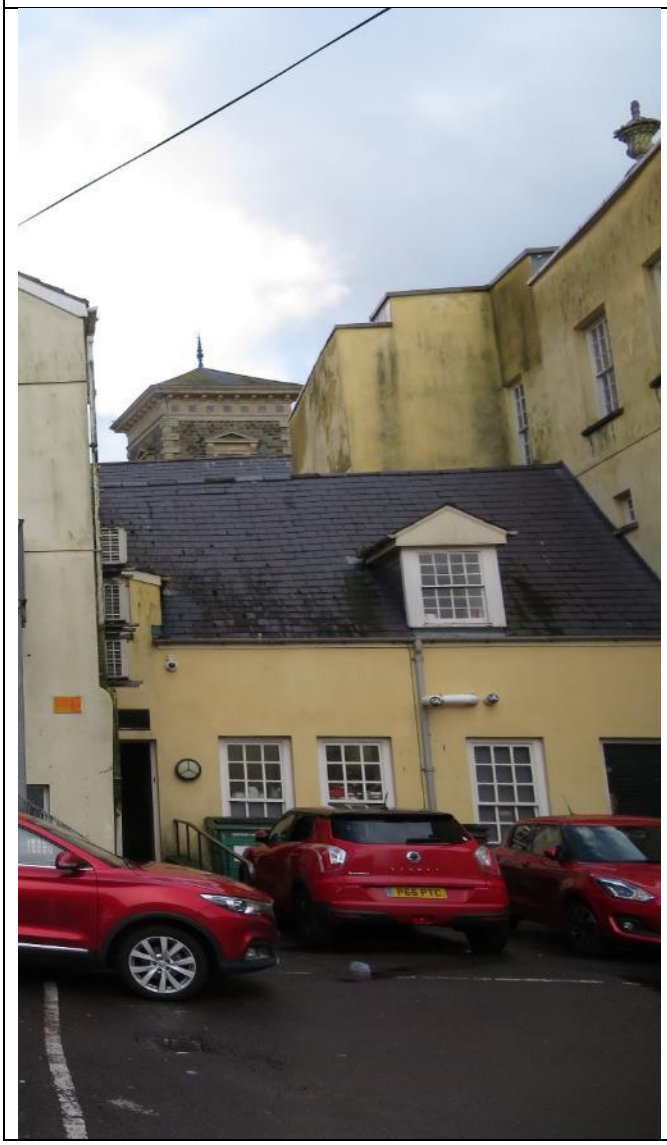
External

	Map of Llanelli showing Llanelly House shaded in the centre - image from archaeology Wales.	Originally surrounded by gardens and countryside.

	Llanelly House Satellite view	Google images, 2021
	Llanelly House – Hotel, conference facility, restaurant, and café.	2020: Access now directly onto public pedestrian path and shopping area in Llanelli. (Photograph by Heritage and Design Ltd, 2020)
	West Gable – Vaughan St. Lime render assumed due to the pattern of moisture as the wall dries out following rain. Lime render would be more appropriate to allow thermal movement and evaporation to take place.	Render could be a mixture of lime and cement due to its differing presentation on different elevations. (Photograph by Heritage and Design Ltd, 2020)

	West gable	Pattern of cracking would indicate render is cementitious (impermeable & inflexible) over original stone/lime (permeable & flexible) movement in building materials beneath create cracking of cement render. (Photograph by Heritage and Design Ltd, 2020)
	Llanelly House – Gable west facing.	Building extends down Vaughan St showing no signs of saturation. Does not mean building is not saturated just no visible symptoms. This section of the building indicates a cementitious render. (Photograph by Heritage and Design Ltd, 2020)
	Decorative lead downpipe onto pedestrian paved area. Recommendation would be to fit a lead shoe to direct the water into the gulley or rotate bottom section of pipe to achieve same outcome.	Downpipe is off centre allowing rainwater to miss gulley when discharging. Green staining indicates gulley becomes blocked resulting in water causing localised flooding and saturating ground. (Photograph by Heritage and Design Ltd, 2020)

	Front elevation.	Staining suggests paint is not porous. (Photograph by Heritage and Design Ltd, 2020)
	Cracking to render between cill and string course suggests render being cementitious. The cement is inflexible against the flexible materials beneath.	Stone string course deteriorating due to moisture evaporation restricted to stone due to decades of impermeable render. Moss growth along string course indicates saturation. (Photograph by Heritage and Design Ltd, 2020)
	Entrance elevation	Door lintel over-cloaked with lead, good choice of materials for weathering and longevity. Metal light bracket above door shows staining from ferrous fixings. (Photograph by Heritage and Design Ltd, 2020)

	Rear elevation at car park. (Photograph by Heritage and Design Ltd, 2020)	Staining at right hand corner where building abuts neighbouring property on Bridge St, shows long term leak from gutter. Install hopper and downpipe to discharge water away from building or additional downpipe – subject to LBC
	As above	Heavy staining on render at high level throughout rear elevation. Large areas of staining from the minimal drip detail at the parapet coping allows rainwater to discharge across the render. Recommendation would be to extend the drip detail. (Photograph by Heritage and Design Ltd, 2020)

	As above. (Photograph by Heritage and Design Ltd, 2020)	Mottling across rear elevation suggests either saturation or lime render. Possibly areas of heat loss due to the building fabric being wet. Recommendation to inspect with thermal imaging camera to determine pattern of heat loss
	Rear elevation at junction of building attached to the south. (Photograph by Heritage and Design Ltd, 2020)	Poor maintenance of neighbouring property blocked and overflowing gutters resulting in heavy staining and debris deposits on main roof and dormer roof. Recommendation: Inform owner of adjacent building to remedy. Clear debris from roof.

Internal

	Internal rooms not inspected – photographs to demonstrate level of specialist contractor to undertake works.	Original timber panelling in dining room at Llanelly House. (Photograph by Heritage and Design Ltd, 2020)
	Reinstatement of missing timber panelling	Clearly shows different type of timber is used but the repair has not been in an effort to disguise but is well-finished. (Photograph by Heritage and Design Ltd, 2020)

	Hotel restaurant dining room at first floor showing original painted panelling.	Photograph to show level of timber detail at panelling, fireplace and windows. (Photograph by Heritage and Design Ltd, 2020)
	Café on ground floor	Ceiling cracking at lath and plaster but remains intact. Should be monitored and repaired as necessary to prevent failure. (Photograph by Heritage and Design Ltd, 2020)

- It is important to recognise that internal symptoms depend significantly on external conditions along with on-going maintenance and repair.

Retrofitting heritage assets – listed buildings

Retrofitting any older building, whether listed or otherwise, requires a great deal of thought mainly in relation to its method of construction and the materials that were originally used. Generally, older buildings prior to 1919 are built as solid construction with two layers of stone that is infilled with rubble, lime and smaller stone. This type of construction uses its thermal mass when heated, the fabric of the building taking a long time to heat up then releasing the heat over a similar period of time. Construction materials such as lime mortar between the stone or brick work on absorption and evaporation of moisture. Internally, either a lath and plaster (narrow strips of timber attached to a timber framework fixed to the stonework) is applied or plaster on-the-hard (directly onto masonry). Either construction method works well for the regulation of moisture absorption and evaporation as it depends on the surface area, however, any changes to the conditions restricting the evaporation rate (using modern plaster or simply modern paints) can cause a greater harm which will contribute to deterioration of the fabric as it contributes to the effects of dampness.

Sanctuary Housing (social landlord) has recently appointed the mechanical and electrical Correct Contract Services (CCS) to retrofit 25,000 properties, to increase energy efficiency ratings from D to C (on energy performance certificate [EPC]) by 2030, to help government achieve targets of reducing carbon emissions. Work will include building insulation, smart meters, design security, efficient heating and cooling and hot water systems. It is not known what the main construction type or age of the properties are, but it is likely a number of the properties could be solid construction or early cavity construction (constructed without cavity trays and weep vents but using traditional, permeable, materials) so performing similar to a solid construction.

Tony O'Neill, Sanctuary Group's Asset Management Director, said:

"Sanctuary is committed to providing adequate homes for its residents. This program will ensure these homes are future-proofed to meet both government and net-zero targets, but most importantly, provide warm, energy-efficient homes that also help tackle fuel poverty" (hvacdaily.com, 2021).

This statement is concerning as it is not clear what the main priorities of the retrofit are, or if the different construction types are appreciated. Is the main priority to provide warm energy-efficient homes that are future proofed to meet the government targets on carbon emission, or simply fitted with new insulating materials that have no consideration for how existing materials function? Whatever the priority, it is hoped a stock condition survey has been carried out by Sanctuary to establish how best to meet the targets and priorities on the age range and construction types of properties they own. Caution should be observed on the choice of materials used to ensure they work well with existing building fabrics.

Maintenance Strategies

Strategies might vary depending on what the main priorities are, whether to lessen carbon emissions, make energy savings or comply with legislation such as Building Regulations. Irrespective of what approach is taken, compromises will be inevitable however, getting the balance right is best achieved through a systematic 'whole building' approach. By ensuring the whole building is considered, there are relative assurances that improvements are suitable, well integrated, cost efficient in terms of sustainability, and well-coordinated. By developing an appropriate framework, all interested parties from assessors to installers are involved, limiting the risks and any potential damage to the asset.

When considering energy efficiency in an older building, the way the original materials were designed and intended to perform must be a fundamental consideration therefore, different materials could be suggested that continue to aid the original function of the building. (Historic England, 2014). To be able to secure funding such as the Green Deal for improvements on heating efficiencies, a survey from a qualified architect or surveyor specialising in older buildings might be required. (Historic England, 2014). The introduction of modern methods of heating and services can have a significant impact on a building such as Llanelly House as originally, it would have been heated by wood, later coal, fires, with water supply being from a well, later

a single cold supply to the basement or kitchen, and lighting via candles and, later, gas lamps. As modern central heating systems are introduced that heat up internal spaces much quicker, the heating and cooling effect can have a detrimental impact on the materials due thermal movement causing shrinkage and decorative disruption seen as cracking at joints or paint finishes.

Where building fabric improvements are to be made such as reducing uncontrolled air infiltration or the addition of insulation, careful consideration must be given to minimising the risk of unintentional consequences. For instance, if adequate provision is not made for ventilation by making the building more airtight, this can result in poor indoor air quality which can have an impact on occupant's health. By failing to reduce excess moisture created by modern living conditions, excessive condensation and mould growth can be an unpleasant experience. (McCaig I, The Building Conservation Directory, 2015).

Traditional buildings (pre-1919) were built with primary heating in each room via open fires which encouraged and allowed good air flow and ventilation, used lime plaster which allowed absorption and evaporation of moisture and were served by timber windows which were a source of air infiltration. The introduction of modern services and materials, such as uPVC double glazing, impacts on how the building performs, as airflow and ventilation is dramatically reduced, this often resulting in excess moisture presenting ad dampness or condensation. Insulation is significant consideration for retro fitting into an older building. Fixing internal wall insulation (impermeable) materials can hinder or stop the external fabric from performing in the way it was intended. Results could be that existing moisture within the fabric of the building gets trapped as air flow and ventilation is reduced/stopped and the moisture cannot evaporate, resulting in the fabric becoming damp, then wet causing accelerated deterioration. Wet materials are a better conductor for heat loss so reducing the benefits of the insulation. A dry fabric is, therefore, the most efficient to heat. It is expected this is not going to be considered when a solid-walled building is assessed for insulation.

Repair/Maintenance/Asset/Facilities

Management Processes

The terms *'repair and maintenance'* and *'asset and facilities management'* will operate in broadly the same way, whether it is looking after historic buildings deemed to be of importance or new-build housing estates. The way in which the systems are set up along with funding streams and financial packages will affect how the process is undertaken. A range of systems and processes are used by many different organisations and companies when carrying out repairs, maintenance or providing facilities management. They will, however, have one thing in common; all have a responsibility for looking after a built asset or service that has a financial worth.

Generally, *asset management* will fall into one of three headings:

Policy based:

Policy based asset management relies on a long-term approach that considers the lifecycle of the asset as a way of evaluating investment benefits and associated costs. Within policy-based asset management programmes, the priorities are defined by the direction an organisation wants to follow and what its overarching priorities are. The framework adopted will not dictate the order of priority, only that discussions involving individual agencies & policymakers (fhwa.dot.gov, 2021).

Performance based:

Performance based asset management supports the preservation of existing assets through the use of identified measures and targets by optimising a balance between availability and utilisation for any asset at any time and supporting prioritisation of investment. Decision makers can prioritise according to the demands of the business strategy which is risk based as costs are weighed against benefits. The lack of effective performance measures, however, tends to result in performance approaches based on budget costs rather than on asset performance (fhwa.dot.gov, 2021).

Generic Based:

Generic based asset management systems usually form part of a framework that is used as a guide to the asset management process. This demonstrates the importance of defining goals and policies at the beginning, with key performance indicators (KPI) embedded as a check facility. The system can be either policy or performance driven as long as one is used as a balance for the other. Adjustments can be made based on performance feedback gathered as part of the monitoring process confirming ‘better than expected’ or ‘unrealistic’ objectives have been set (fhwa.dot.gov, 2021).

Former Water Works – Broadside Court, Denny

Broadside Water Works in Denny, Stirlingshire, first appeared on maps between 1952-58, within the development of the Little Denny Reservoir some 10 years previous. The name was taken from the nearby farm. The water works was built in response to the continued demand for filtrated water that was supplied to the surrounding area. Little Denny Reservoir is no longer used as a public water supply. Concerns over the structural integrity of a dam have resulted in the reservoir near Falkirk being drained in the interest of public safety.

The main building was originally erected to support the administration function of the water treatment works and was constructed using post and beam reinforced concrete, with an infill of single skin brickwork. The façade is a mixture of the of the post and beam concrete structure, with reconstituted stone applied over, for decoration and assumed to protect the concrete. The roof is flat beyond a parapet, assumed to be a concrete slab, and finished with mineral felt. Rainwater drainage is via outlets through the parapet wall discharging to cast iron pipework. The parapet is built using brick finished with concrete copes. There are a number of buildings of similar appearance on the site ancillary to the main office block, none of the buildings were constructed to be domestic dwellings.

Following the closure of the treatment works, the site was re-developed for domestic housing. The main office block was developed into flatted accommodation and ancillary buildings refurbished into town houses for sale on the open market. The building's internal leaf is a softwood timber frame with oriented strand board (OSB), a vapour barrier and mineral wool insulation (MWI), and finished internally with plasterboard.

Managing the Asset – Ethical Maintenance

Broadside court is a private housing estate on the outskirts of Stirling. Residents have formed an elected committee and have instructed a private maintenance/management company to look after the properties. This includes all 'common' parts of the originally refurbished waterworks. All external fabric including roofs; walls; gutters; downpipes; windows; common areas and grounds are within the remit. Residents pay an annual subscription for the service normally referred to as an 'annual maintenance' cost determined at point of purchase for property type. The charge is collected from each resident in a similar way to council tax, monthly or annually. Failure to pay the annual charge can result in court action which can result in the loss of your home.

Broadside Court has engaged a maintenance company called Ethical Maintenance (EM) who are somewhat unusual in their approach.

> *"You decide maintenance works for the year then we build your annual programme around those and put contracts out to tender. We guide and advise as much as needed to make best use of your budget and keep common areas in great shape. But the final decision is always in your hands"* (ethicalmaintenance.org, 2021).

EM carries out a range of services associated with factoring the common areas & grounds for repairs and maintenance. EM act as an intermediatory between resident and contractor, they do not have any skilled trades workforce on site but will liaise with contractors and prepare tender documents for larger works. However, where EM appear slightly different, once they have all the information required, it is passed back to the residents committee to consider what work is to be carried out and by whom, with little relevant knowledge from both contractor and resident, to choose an appropriate contractor. This can be hazardous as the lack of professional knowledge and understanding of the particular construction and associated materials can result in unintended consequences.

> *"Let them alone: they be blind leaders of the blind. And if the blind lead the blind, both shall fall into the ditch."* (Matthew 15:14 of the New Testament of the Bible).

What you get for your money:

- Full range of factoring services including but not solely, site visits, liaison with contractors, preparation of tender documents for large works, all clerical duties including collection of annual fees and the ability to vote annually to retain services

- Interactive website for residents
- Not for profit organisation – All profits after staffing and overhead costs are put back into the funds to making service delivery better
- Use local contractors to ensure our carbon footprint remains as low as possible

What you don't get

- Staff with the necessary professional qualifications and experience to ensure they correctly identify the necessary work and hire the most appropriate contractors
- Accountability for the hiring of contractors as this is passed back to the owners
- A detailed staffing structure with appropriate qualifications for job designation, contact details with photograph (to put names to faces)
- Maintenance manager who is qualified
- Prompt payment for contractor services

Interrogation of the website and Companies House only provided basic information about directors, nothing could be found about staffing structures and their professional qualifications, knowledge or experience of construction and related property services.

Photo Schedule:

Broadside Court:

External

	Site of the former Broadside water works circa 1950's – (Old maps.co.uk)	
	Ariel view of Broadside court (Google image, 2021)	

	Broadside private housing development. Main three storey section at centre former office block now split into flatted dwellings with additional wings forming town houses	(Photograph by Heritage and Design Ltd, 2020)
	Parapet wall with concrete cope. Facing stone over concrete columns and floor slab, single skin brick infill.	Facing stone is heavily stained and salt staining is noticeable to both brick and stonework. Normally as a result of contaminated sand. Rendered section of brickwork likely result of water ingress. (Photograph by Heritage and Design Ltd, 2020)
	Window detail at townhouse accommodation	Silicone sealant appears to have been used around window frames. Recommendation: Remove failed sealant and re-seal frames using good quality mastic. (Photograph by Heritage and Design Ltd, 2020)

	Weep vents	Installed apparently randomly so likely to answer defects. (Photograph by Heritage and Design Ltd, 2020)
	As above	Trickle vent part sealed so assumed blamed for water ingress/dampness which is unlikely to be the case. (Photograph by Heritage and Design Ltd, 2020)
	Ground levels throughout the site are high and grass is laid close to the external walls.	DPC is bridged. Recommendations: Reduce ground levels throughout to at least 150mm below DPC. (Photograph by Heritage and Design Ltd, 2020)

	Decorative stone margin at main block.	Coating applied, possibly Linostone, as a water proofing material. Recommendations: Carefully remove coating. (Photograph by Heritage and Design Ltd, 2020)
	Window cill detail (Photograph by Heritage and Design Ltd, 2020)	Efflorescence causing staining to brickwork. Void at cill will allow windblown water ingress. Cill should have extended into brickwork. Recommendation: Pack joint using cement mortar. Allow for mastic at junction.
	Roughcast applied in sections around parapet.	Drill holes too regular for scaffolding fixings. Likely chemical dampproof injection at base of parapet in place of well-designed parapet. Another inappropriate contractor given carte-blanche for repairs. (Photograph by Heritage and Design Ltd, 2020)

	Failed sealant, shrinkage, untidy work with staining run off onto painted render. (Photograph by Heritage and Design Ltd, 2020)	Extremely poor work using inappropriate materials. Unsupervised. Recommendation: Removed failed sealant, clean and prepare surface apply mortar to cope junctions and repair render.
	Leadwork above stone margin.	Good choice of material to prevent water ingress at junction. (Photograph by Heritage and Design Ltd, 2020)
	As above	Poor workmanship and detailing negating the usefulness and quality materials used. (Photograph by Heritage and Design Ltd, 2020)

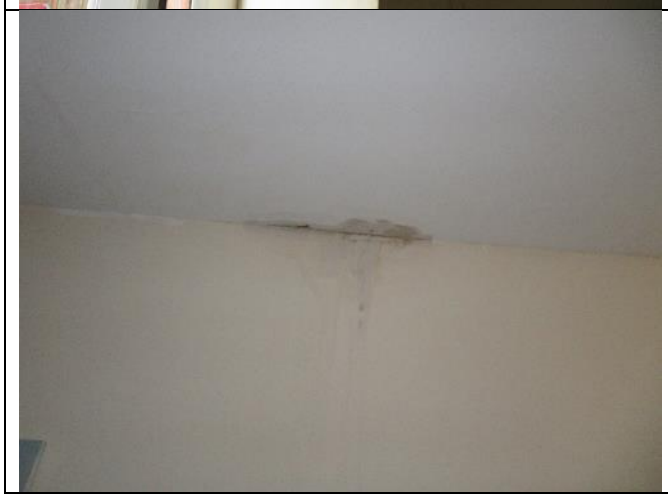
	Junction of brick butt to infill panel	Silicone sealant used to fill junction in brickwork. Poor choice of materials, poorly applied. Recommendation: Remove, clean and prepare area and apply good quality mastic. (Photograph by Heritage and Design Ltd, 2020)
	Flat roof beyond parapet (Photograph by Heritage and Design Ltd, 2020)	Green mineral felt. Repairs and failures noted. Application poor at detailing at junction of parapet wall. Recommendation: Assess overall condition and consider full replacement where necessary. Consider single ply membrane - EDPM
	Parapet detailing at edge	Mineral felt used to over cloak coping stone, poor detail and finish, short of cope and not providing drip detail. (Photograph by Heritage and Design Ltd, 2020)

	Drainage from flat roof	Lead shoe above hopper good choice of material for longevity. Poor workmanship and detailing. Recommendation: Consider changing detail. (Photograph by Heritage and Design Ltd, 2020)

Internal common areas

	Within timber insulated inner frame in common area at window cill. (Photograph by Heritage and Design Ltd, 2020)	Plasterboard finish removed to investigate water penetration. OSB saturated and deteriorated, loose mineral wool insulation (MWI) wet from water ingress resting against softwood timbers also wet. Recommendations: Carry out external repairs correctly
	Underside of concrete floor slab	Corrosion staining. Recommendations: Inspect integrity of reinforcement. (Photograph by Heritage and Design Ltd, 2020)

	As above	Concrete floor slab, corrosion and failure of reinforcement, concrete cover minimal. (Photograph by Heritage and Design Ltd, 2020)
	Brickwork at outer leaf. (Photograph by Heritage and Design Ltd, 2020)	Staining and wet rot to softwood timber inner leaf and voided brick joints. Recommendations: Carry out external repairs as necessary. Assess timber and replace as necessary.
	Timber connection detail. (Photograph by Heritage and Design Ltd, 2020)	Nail plate showing corrosion from water ingress. OSB flooring of floor above saturated. Plastic membrane above OSB. Recommendations: Complete external repairs. Replace decayed material as necessary

	As above	As above (Photograph by Heritage and Design Ltd, 2020)
	Window reveals (Photograph by Heritage and Design Ltd, 2020)	Staining to soffit indicated water ingress from above. Metal corner bead corroding. Recommendation: Complete external repairs. Remove plasterboard to aid drying process and to allow for repairs. Ensure completely dry before reinstating finishes.
	External wall	Stain shows bridging from water ingress. Recommendations: Complete external repairs as necessary. (Photograph by Heritage and Design Ltd, 2020)

- It is clear from the materials used in the refurbishment then maintenance that little consideration has been made in using the appropriate materials, and what appears to be the cheapest method applied. This has resulted in further deterioration of the building fabric and distress to the owners who are not getting the best advice from their factors. As the buildings were never intended for domestic use, a number of factors need to be considered further in relation

to the insulation of the properties and the weather protection offered by the external fabric.

- The structural integrity of the concrete floor slabs needs further investigation by a structural engineer and an allowance made for repairs where necessary however, repairs of this nature will be disruptive and costly.

Of particular concern today is the alkali silica reaction in the concrete and the corrosion of the reinforcing steel, both of which are caused by the alkalinity of Portland cement concrete and moisture.

Recording Systems

There are numerous systems in use for the recording of repair and maintenance of assets and, dependant on the size of the company or organisation, will determined how records are kept. Many larger, well organised, companies/organisations have sophisticated IT computer systems that rely on data input which, in turn, allow the production of a whole suite of reports as well as categorise repairs with associated costings.

Some high-end software can provide detailed schedules, cyclical and programmed maintenance and repairs that can be forecast for years in advance and provide year on year comparison of the spend/savings achieved. Systems such as these are hugely expensive and are normally supported by an in-house IT team frequently used in local authorities and housing associations. Smaller organisations might have developed a system using a generic Microsoft package such as Access or Excel to record the same details, but the flexibility and functionality of these systems will be limited. Generally, repairs and maintenance will be carried out on a priority basis, irrespective of the organisation who owns or manages them. In Local Authorities repairs are generally graded as:

- Emergency – within 24hrs
- Urgent – usually within 7 days
- Routine 28 days +

Planned and cyclical maintenance is graded slightly different with the stock in greatest need prioritised as the highest to be completed first. As with most organisations with large portfolios of stock cyclical maintenance periods will vary greatly, with some constantly put back due to financial pressures. A example of cyclical maintenance that can be shelved repeatedly is painting that requires scaffolding or additional methods of access, that add to the overall cost.

All systems, whether sophisticated or not, are generally supported by a number of manual systems that form the data contained in the system: note taking from phone calls; counter enquiries as well as emails which are manually transferred to the system in use and even with the most sophisticated software, the quality of information relies on humans and their manual input.

Dilapidation Surveys

A dilapidation survey is generally carried out when a property is let or leased. The nature of the survey is to determine the condition of the property at point of entry and exit (incoming and outgoing tenancy), to establish the properties condition. A detailed inventory of the building fabric, fixtures and fittings is recorded along with photographic evidence on the condition of the property. The details recorded are then agreed by both landlord and tenant. Once a lease has ended, the property should be returned to its original state and any alternations or changes made during lease term removed. Costs are applied where this does not happen. A dilapidation survey is legally binding between landlord and tenant, similar to a tenancy agreement for social rented housing.

> *'In most instances, the content of the Schedule of Dilapidations is negotiated between the parties with a view to reaching a settlement. By adding additional columns to the Schedule of Dilapidations both parties can record their respective positions, thereby developing it into a Scott Schedule'* (RICS, 2016)

Sample dilapidation template (RICS – appendix 1 & 2)

Stock Condition Surveys

A stock condition survey is a detailed recording of properties generally in a large portfolio. A good example would be a local authority housing stock or a business with a range of buildings. I have worked for several organisations and local authorities that would use a stock condition survey prior to a large capital expenditure. For example, when establishing an extensive programme of works to upgrade housing stock to meet government standards. Surveys are generally undertaken by building surveyors from an external company who are employed to complete a condition survey and produce the report. The scope of the intended programme of works will determine what information is sought from the survey.

Social landlords will use a stock condition survey when a large-scale stock transfer is taking place as the report will detail the condition and valuation of properties prior to any negotiation taking place. The task is onerous and can take a long time to complete due to the level of detail required, therefore. It is imperative to set the objectives prior to work commencing such as:

• WHAT needs to be done?

• WHEN does it need to be done?

• HOW much will it cost?

I have personal knowledge and experience of organisations with vast complicated portfolios of built assets with no up-to-date knowledge of their current condition or value. Information is generally obtained for each asset on an individual basis as and when required. It is only when large, programmed works or stock transfer or sale

demands a detailed report that surveys are instructed. As a former housing manager, I would advocate to employ an external company to carry out the work for the following reasons.

- Unbiased professional opinion – carried out by qualified building surveyors
- Unknown to tenants/residents so not drawn into discussing unrelated issues within the properties
- Speed of delivery – timescale can be set
- No effect on in-house staff workload
- Quality report, if the parameters are set at the beginning

Sample stock condition overview and template (appendix 3)

Obsolescence

Llanelly House

As can be seen from the history of Llanelly House, it has undergone many different incarnations from a country house to mixed use flats and shops to wedding and conference centre with café. As the building has been listed it is protected to a greater extent and to that end its structural integrity and fabric function will also be protected. As the built environment and its property use changes it will do so in accordance with its stature and, as its significance is clearly identified, the protection should protect it during future changes of use.

Broadside Court – Residential

As with Llanelly House, Broadside Court has already undertaken a transformation from its originally designed and intended use however, it has not received the same scrutiny as it is not protected by statutory listing. Although the renovations at the time complied with Building Regulations and British Standards. the work carried out in its transformation appears to have been cost-based and with some with inferior materials used. The poor-quality work identified in the photo schedule and the materials used in its maintenance and repair programme in recent years has not achieved the best outcome for the residents. Work required to ensure structural integrity is not a concern could prove very expensive and out of reach for some homeowners. As the fabric of the buildings continues to deteriorate it is difficult to see what the end result for these properties will be.

Conclusions

The maintenance of all buildings is crucial as deterioration to any building fabric occurs over time. How we maintain our buildings will also differ depending on its construction type, materials and its exposure however, good maintenance is vital to *all* built assets.

> *"Maintenance is recognised philosophically as the optimum strategy for the care of buildings"* (Maintain our Heritage, 2004).

Understanding that maintenance is key to ensuring the value of an asset is maintained and to ensure our heritage is saved. This is not to say that we only look after and maintain buildings of importance or of significance. Most of our traditional domestic buildings are understated, but the terraced house is now being recognised as just as important as a listed building when in need of repair or general maintenance and its contribution to the heritage of an area gives it significance as a 'heritage asset'. Few occupants of the humble terrace, built in the late 1800-1900, however, would think of their home as a piece of heritage. The terrace should be maintained in exactly the same way as any listed building as it's construction type and materials are the same.

It is hard to see a consensus on exactly where maintenance ceases and repair starts. BS 7913 defines repair, as distinct from maintenance, as:

> *'Work beyond the scope of regular maintenance to remedy defects, significant decay or damage caused deliberately or by accident, neglect, normal weathering or wear and tear, the object of which is to return the building or artefact to good order, without alteration or restoration' (BS 7913, 2013)*

A good understanding of your building whether it is of modern cavity construction or an older, traditional, solid-walled construction is vital to its wellbeing as is a good maintenance programme. Unfortunately, many owner occupiers, tenants or even maintenance managers do not have this knowledge before they make changes that, over time, have a negative impact on a buildings fabric and accelerate its deterioration.

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Appendices

Appendix 1: Dilapidation & Scott Schedule Template RICS

Appendix 2: Stock Condition Survey template UWE Bristol

Schedule

Item	Clause no.	Breach complained of	Necessary remedial works	Cost
Repair works				
1				
2				
3				
Other works				
4				
5				
6				
7				
8				
9				

Summary page

Cost of works (inclusive of contractor's preliminaries, overheads and profit)	£
Design and contract administration fees	£
Professional fees for preparation of Schedule of Dilapidations	£
Legal fees for service of Schedule of Dilapidations	£
Sub-total	£
Allowance for VAT	£
TOTAL	£

Endorsement

I [name] confirm that in my opinion:

All the works set out in the schedule are reasonably required to remedy breaches complained of.

Full account has been taken of the landlord's intentions for the property, as advised by the landlord.

The costings, if any, are reasonable.

Dated ……

Signed ……

[Name and address of building surveyor appointed by landlord]

Alternative formats of Schedule

Item	Clause no.	Breach complained of	Necessary remedial works	Cost of repair works	Cost of other works
1					
2					
3					
4					
5					
6					
7					
8					
9					

Item	Clause no.	Breach complained of	Necessary remedial works	Cost of works	Landlord's proposed remedial works (if different)
Repair works					
1					
2					
3					
Other works					
4					
5					
6					
7					
8					
9					

Item	Clause no.	Breach complained of	Necessary remedial works	Cost of repair works	Cost of other works	Landlord's proposed remedial works (if different)
1						
2						
3						
4						
5						
6						
7						
8						
9						

Appendix D Format of a Scott Schedule

Scott Schedule format (stand-alone or appended to a Tenant's Response)

Item	Clause	Breach complained of	Necessary remedial works	Landlord's costs	Tenant's comments (including cross-references to other material - for items considered to be superseded)	Tenant's costs	Etc.
Repair							
1							
2							
3							
4							
5							
6							
Other obligations							
7							
8							
9							

Summary Page

Cost of works (inclusive of contractor's preliminaries, overheads and profit)	£
Design and contract administration fees	£
Professional fees for preparation of Schedule of Dilapidations	£
Legal fees for service of Schedule of Dilapidations	£
Sub-total	£
Allowance for VAT	£
TOTAL	£

Endorsement

The Scott Schedule contains the true views of [name] being the building surveyor appointed/employed by the Tenant to prepare the document.

I [name] confirm that in my opinion:

All the works set out in the Scott Schedule are reasonably required to remedy any breaches of the Tenant's covenants or obligations.

Where it is considered that items in the Schedule of Dilapidations are likely to be superseded by works to be carried out by the landlord or are likely to be superseded by the landlord's intentions for the property then:

- this has been stated in the Response/Scott Schedule
- particulars have been given of the material on which the tenant or tenant's surveyor relies and
- the items to which this view is relevant have been identified.

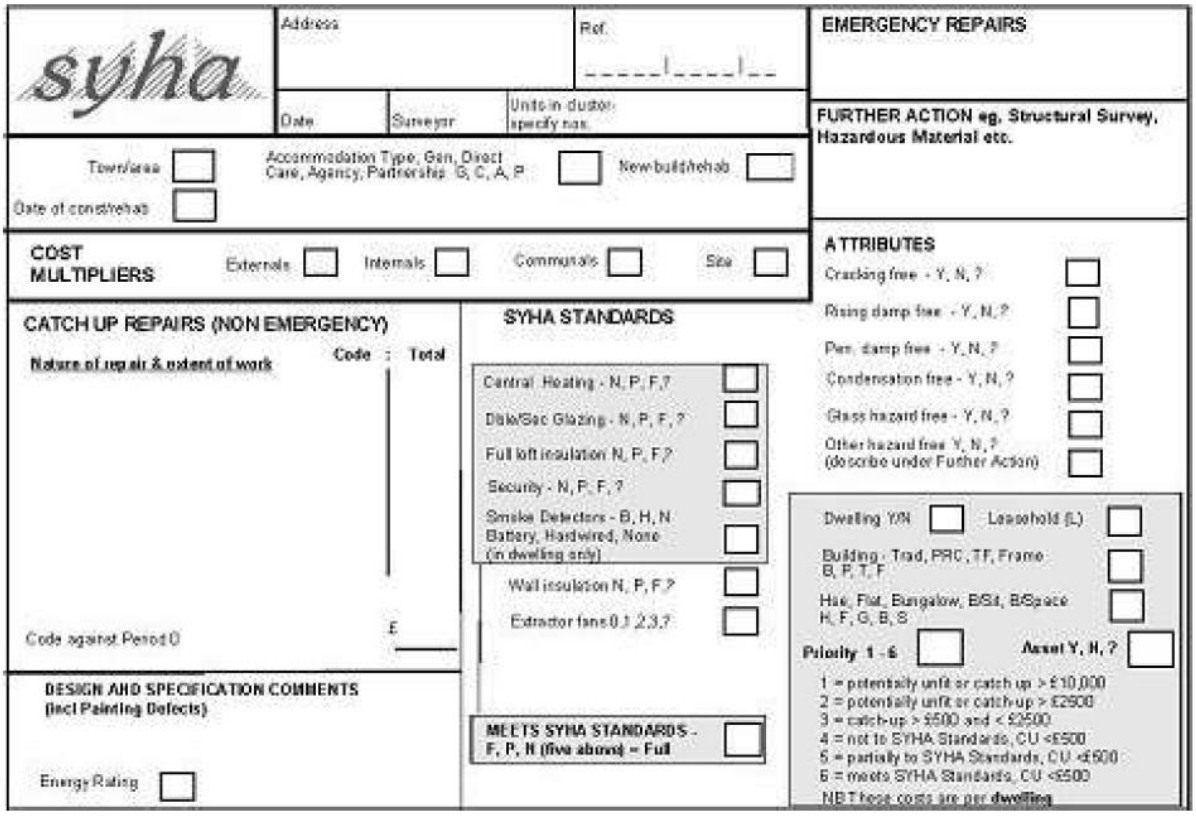
The costings [if any] are reasonable.

Dated ……

Signed ……

[Name and address of building surveyor appointed by Tenant]

Appendix 2: Samples of Stock Condition Survey templates


syha

Address

Ref.

Date | Surveyor | Units in cluster specify nos

EMERGENCY REPAIRS

FURTHER ACTION eg. Structural Survey, Hazardous Material etc.

Town/area | Accommodation Type, Gen, Direct Care, Agency, Partnership: G, C, A, P | New build/rehab

Date of const/rehab

COST MULTIPLIERS: Externals | Internals | Communals | Site

ATTRIBUTES

Cracking free - Y, N, ?

Rising damp free - Y, N, ?

Per. damp free - Y, N, ?

Condensation free - Y, N, ?

Glass hazard free - Y, N, ?

Other hazard free Y, N, ? (describe under Further Action)

CATCH UP REPAIRS (NON EMERGENCY)

Nature of repair & extent of work | Code | Total

Code against Period 0 | £

SYHA STANDARDS

Central Heating - N, P, F, ?

Dble/Sec Glazing - N, P, F, ?

Full loft insulation N, P, F, ?

Security - N, P, F, ?

Smoke Detectors - B, H, N Battery, Hardwired, None (in dwelling only)

Wall insulation N, P, F, ?

Extractor fans 0, 1, 2, 3, ?

MEETS SYHA STANDARDS - F, P, N (five above) = Full

Dwelling Y/N | Leasehold (L)

Building - Trad, PRC, TF, Frame B, P, T, F

Hse, Flat, Bungalow, B/St, B/Space H, F, G, B, S

Priority 1 - 6 | Asset Y, N, ?

1 = potentially unfit or catch up > £10,000
2 = potentially unfit or catch up > £2500
3 = catch-up > £500 and < £2500
4 = not to SYHA Standards, CU <£500
5 = partially to SYHA Standards, CU <£500
6 = meets SYHA Standards, CU <£500

NB These costs are per dwelling

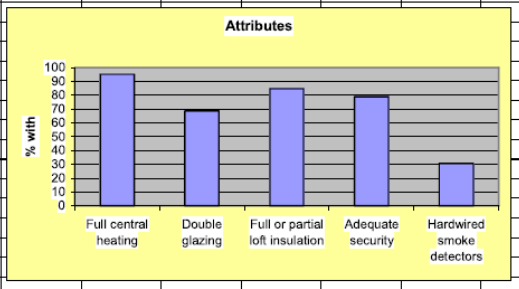
DESIGN AND SPECIFICATION COMMENTS (incl Painting Defects)

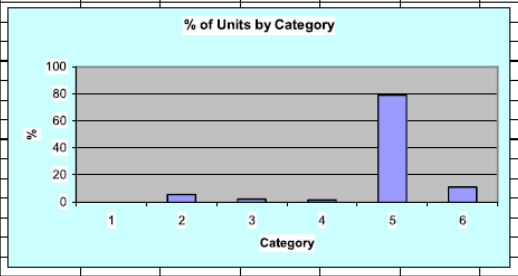
Energy Rating

Element	Sub element	Life	House	Flat	Rate	Unit
External Work						
102 Coverings	Interlocking	60	£3,000		£60	m2
	Slate(natural)	100	£10,000		£200	m2
	Slate(artificial)	40	£5,500		£110	m2
	Plain tiles(clay)	80	£6,000		£120	m2
	Plain tiles(conc)	60	£4,500		£90	m2
	Asphalt	30			£55	m2
	Built up felt	15			£30	m2
103 Chimney	Repoint	50			£300	each
	Rebuild	60			£1,500	each
104 Flashings	Flashings	60	£400		£60	lm
105 Fascias, bargeboards	Timber	60	£600		£50	lm
	PVC	40	£750		£60	lm
106 Gutters/RW pipes	PVC	20	£450		£20	lm
107 Windows	Timber	35	£2,500	£2,000	£250	m2
	PVC	35	£3,000	£2,400	£300	m2

Attributes

Properties with:			
			%
	Full central heating		95
	Double glazing		69
	Full or partial loft insulation		85
	Adequate security		79
	Hardwired smoke detectors		31
Hazards:			%
	Cracking free		97
	Damp free		98
	Condensation(severe) free		97
Asset:			%
	Good asset		95
Category:			%
	1		0
	2		6
	3		2
	4		2
	5		79
	6		11
		Total	**100**
	Disrepair more than £10,000	**1**	
	Disrepair £2,500 to £10,000	**2**	
	Disrepair £500 to £2500	**3**	
	Not to SYHA Standards	**4**	
	Partially/almost to SYHA Standards	**5**	
	Fully to SYHA Standards	**6**	





NB. The small sample size, about 2%, means that these figures may not be very accurate.

NB **Full = Central heating, double glazing, secure, hardwired smoke detectors, well insulated**

NB **Properties with high disrepair costs are in categories 1 - 3. These over-ride 4 - 6.**