

ANALYSIS OF BUILT ASSETS – A CASE STUDY APPROACH – ACBA6006

BUILDING CONSERVATION ASSET & FACILITIES MANAGEMENT

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TASK 1

1. INTRODUCTION

Climate change is the world's biggest challenge today, the planet is 0.8°C warmer today than it was a century ago and buildings are the third largest sector emitting carbon in the UK today (Historic England, 2019). Conservation is the management of change, and it is very important to understand the effects of any changes proposed (CADW, 2017). We can meet and reduce climate expectations by significant improvements to the current built stock, this can be reduced by over 60% by refurbishments and retrofitting historic buildings (Historic England, 2019).

1.1 Site Details

St David's University College
College Street
Lampeter
SA48 7ED

Grade: II* Date Listed: 21 September 1964 Cadw Building ID: 10431

1.2 Background

The Lampeter campus was originally founded in 1822 as St David's College (UWTSD, 2024). The first university founded in England and Wales since Oxford and Cambridge, established by Bishop Burgess of Saint David's (CADW, 2012) and land for the site that was donated by John Scandrett Harford of Harford Estate Lampeter (UWTSD, 2024).

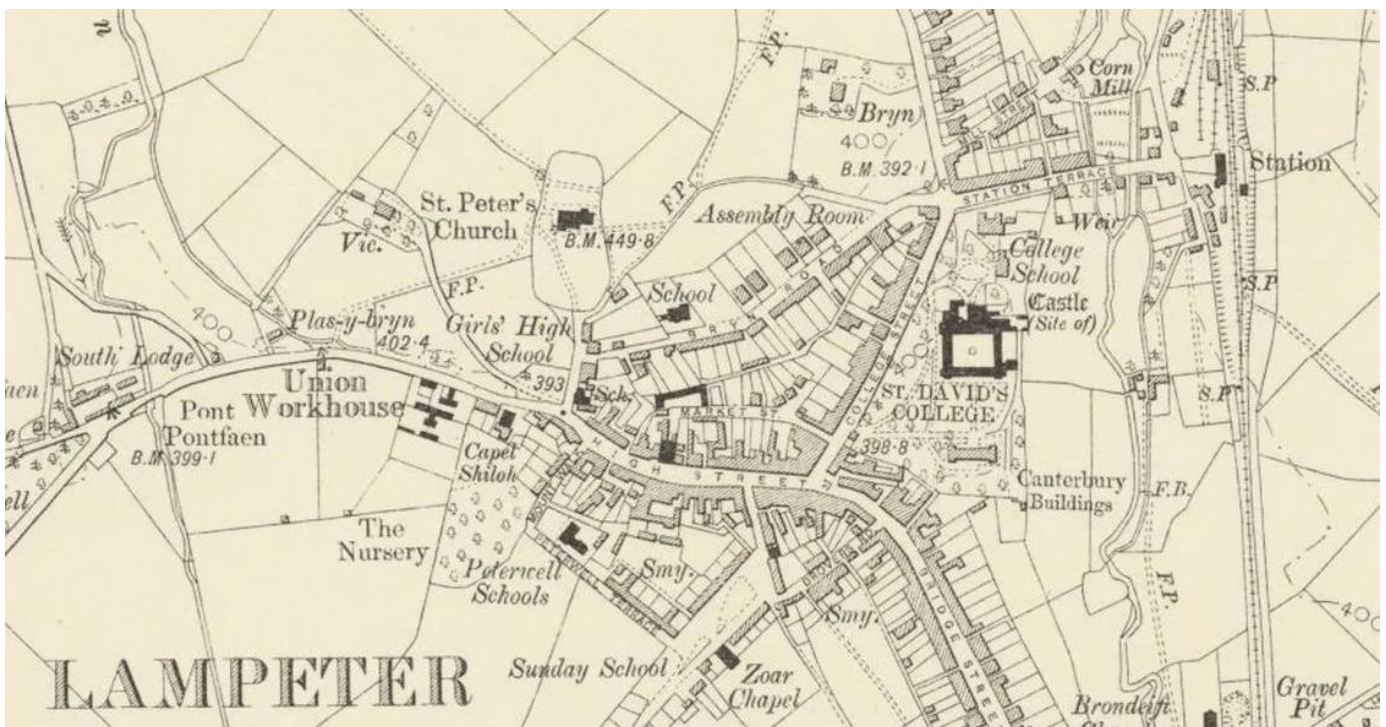


Image 1 Historic map Lampeter (Ceredigion History, 2024)



Image 2 University of Wales, Trinity St David (ShikSha, 2024)

1.3 Historic Timeline

Brief Historic Timeline Grade II* listed building	
1800 - 1820	Bishop Burgess proposed an idea of a college, an appeal was made to the local community for support, the land for the site was donated by John Scandrett Harford from Harford Estate Lampeter.
1822	12 th August saw the foundation stone being laid on King George IV's 60 th Birthday with the King making a £1000 donation.
1826	Revd Llewelyn Lewellin was the first appointed principal
1827	1 st March St Davids Day the first 26 students were admitted into the college.
1828	First Royal Charter for the College
1852	Gained the right to award a degree of Bachelor of Divinity (BD).
1865	Gained the right to award a degree of Bachelor of Arts (BA).
1866	The first official rugby match in Wales was played at the college between St David's and Llandovery colleges.
1880	First College to be affiliated to Oxford.
1883	First College to be affiliated to Cambridge.
1884	College School Opened
1885	Foundation stone for the Old Canterbury Building laid.
1887	Old Canterbury Building opened.
1903	College Welsh library established
1909	Grade II listed building The College cricket pavilion.
1922	The War Memorial unveiled it was designed by WD Caroe
1853	Statue of St David
1969	The Lloyd Thomas Building was opened.
1971	The College became a member of the federal University of Wales then renamed to St David's University College.
1973	The New Canterbury Building opened.

1996	Renamed University of Wales, Lampeter
1996	The Cliff Tucker building opened by Sir Anthony Hopkins.
1997	The Sheikh Khalifa Building opened.
2010	Merge with Trinity University College to become The University of Wales Trinity St David.
2012	The New Canterbury Building demolished and a new building reopened in 2013

1.4 Location

The location of the University has a rich history as a university town and a town of commerce (Discover Ceredigion, 2024). Lampeter is one of 13 conservation areas in Ceredigion (Ceredigion History, 2024) historically Lampeter was part of the county Cardiganshire (Get The Data, 2024). It is located four miles north-east of Llanybydder in north Wales, 35miles from Swansea and Cardiff is 58 miles south-east of Lampeter (Get The Data, 2024).

2. SIGNIFICANCE

The importance of the significance of the historic asset, is to understand the characteristics and the history that contributes to making the asset valuable (Smith, 2019). The significance of the historic asset can be divided into the following headings.

- Evidential Value
- Historic Value
- Aesthetic Value
- Communal Value

(British Standards, 2013).

Level of Significance	Importance	Approach
A - Exceptional	International	Reveal, maintain and enhance through meticulous preservation and conservation.
B - Considerable	National	Reveal, maintain and enhance significance but some alterations and supplementary construction may be considered to accommodate future compatible uses.
C - High	Regional	Reveal, maintain and enhance significance but acceptable options may, subject to mutual agreement based on expert analysis including alteration or removal in whole or in part
D - Modest	Local Site	Interventions of a greater extent and alterations and even demolition may be acceptable
E - Little	Detrimental	Alter, remove or demolish the asset as it is detrimental to the character of the area

2.1 Evidential Value

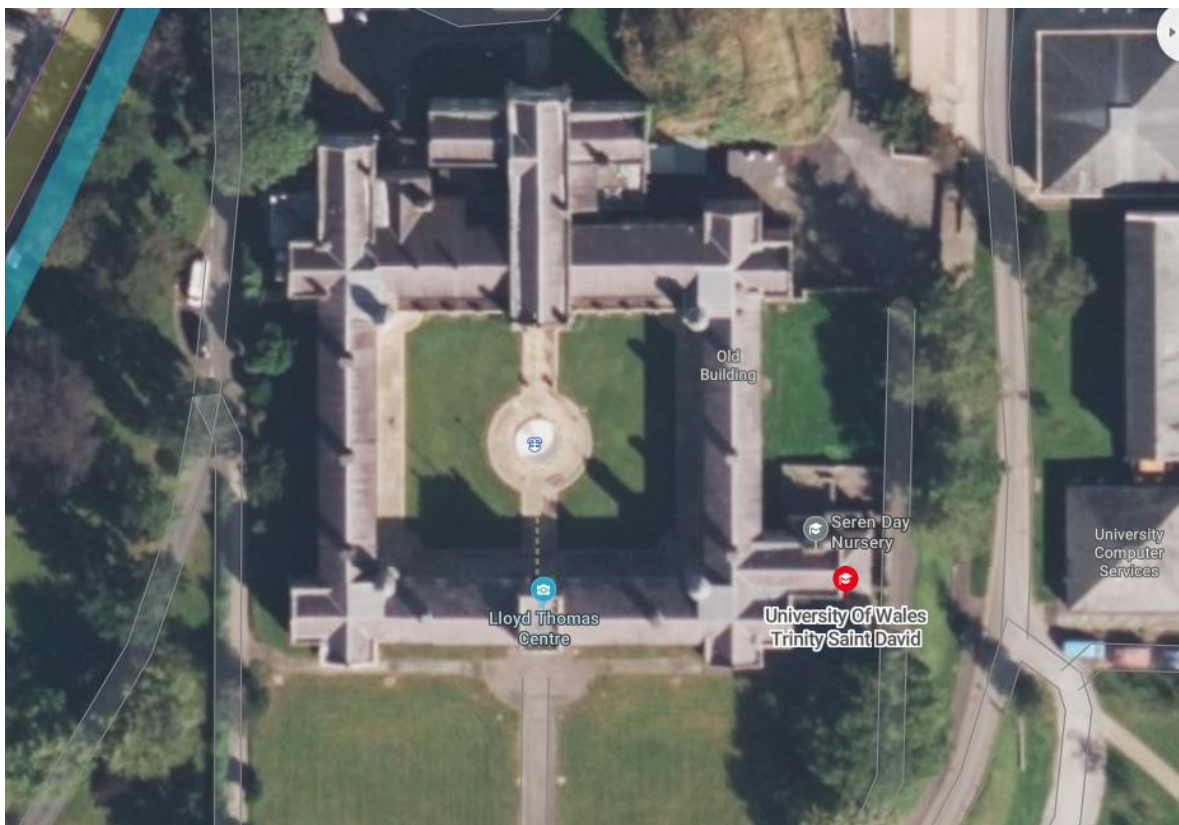
The evidential value of the Lampeter Campus Old College Buildings, which is the value to show evidence of past human activity, how the historic asset was made, used and has changed over time (CADW, 2017).

The historic Old College Buildings at UWTSO Lampeter Campus, has high evidential value, this dates to early 1800's where Bishop Burgess proposed a college at a meeting in Abergwili on the 10th of October 1804, where an appeal was also made for donation of books for the college library in 1807.

The Old College Building is a simplified Tudor Gothic style, that is stucco rendered on the outside, and it consists of slate roofs (CADW, 2012). The Old College Building was designed by C R Cockerell a neo-classical mid nineteenth century British architect, with the collegiate design based on 17th century prototypes of Oxford (British Listed Buildings, 2012).

The old building is a quadrangle with an entrance tower to the south, and a T shape projection at the north exit/entrance (University of Wales Trinity St David, 2018). The chapel hall is on the 4th side placed symmetrically with a first-floor library at a right angle to the chapel, hall, and teaching rooms (British Listed Buildings, 2012). There have been numerous extensions and upgrades since being built between 1822 - 1827 (University of Wales Trinity St David, 2018). There have been some other remodelling alterations over the 19th and 20th century to the chapel and the hall (British Listed Buildings, 2012). The first foundation stone was laid on the 12th of August 1822 (Archive Hub, 2024).

The internals of the Old College Building in Lampeter have very low evidential value due to the level of refurbishment in recent times, making the understanding of their origins difficult to decipher (University of Wales Trinity St David, 2018). The interiors that do hold high significance are the Founders Library, Chapel and Old Hall (University of Wales Trinity St David, 2018).



2.2 Historical Value

Historical past way of life, this can be an association to a person or a specific event. This may be of significance and important to retain (CADW, 2017).

The importance of the historical value of the Old College Building in Lampeter has been evident in its association with historic figures and origin of education and higher education in Wales.

The St David College in Lampeter welcomed its first students on St David's day 1827, donations were received from all over including King George IV, the College is also the oldest degree-awarding institute (Business News Wales, 2022) the only other universities to predate the St David College in Lampeter is Oxford, Cambridge and Scotland throughout Britain, receiving its charter in 1828 (Archive Hub, 2024).

The building holds important historical value, with the architectural value, as well as it serving for over 200 years as a higher educational institution of Wales (Business News Wales, 2022) also becoming the first college to become affiliated to Oxford and Cambridge Universities. The University was established to accommodate the diocese of the ministry men in training who could not afford a university, establishing a path for Welsh graduates (Archive Hub, 2024).

2.3 Aesthetic Value

The design and craftsmanship of the historic asset, including the setting and views to and from the asset (CADW, 2017). Sensory and intellectual stimulation from a place or asset (Smith, 2019).

The college designed on the prototype of the 17th century Oxford, with other examples of this collegiate design being St John's Brasenose and Oriel Colleges. The college's design by John Foster 1822-1827 and utilising earlier designs 1819 -1821 from a neo-classical British architect C R Cockerell, simplified Tudor Gothic rendered quadrant construction (Archive Hub, 2024). The Old College St Davids building has ridge stacks which have been rebuilt in black brick and slate roofs. The windows throughout the building are cast iron, small paned and flat headed, all down pipes are cast iron (CADW, 2012). There are symmetrical facades and corner towers with two light windows (University of Wales Trinity St David, 2018).

2.4 Communal Value

The historic asset may have significance to people for its commemorative, symbolic or spiritual value, or for the part it has played in local cultural or public life. (CADW, 2017).

The St Davids College has high communal value related to the fact it is a historic educational institution for over 200 years it has added value to the surrounding Welsh community supplying the townspeople with a degree education and being the first college associated with the Universities such as Oxford and Cambridge with high status education.

British Standard 7913:2013 Guide to the conservation of historic buildings suggests that with listed buildings, the magnitude of change should be assessed in relation to the significance and value(s) of the building. The magnitude of impact can range from a neutral impact where the value is low or negligible and there is no change, to very large where the value is very high and the impact is major.

VALUE	Very High	Neutral	Slight	Moderate/ Large	Large/Very Large	Very Large
	High	Neutral	Slight	Slight/ Moderate	Moderate/ Large	Large/Very Large
	Medium	Neutral	Neutral/ Slight	Slight	Moderate	Moderate/ Large
	Low	Neutral	Neutral/ Slight	Neutral/ Slight	Slight	Slight/ Moderate
	Negligible	Neutral	Neutral	Neutral/ Slight	Neutral/ Slight	Slight
		No change	Negligible	Minor	Moderate	Major
MAGNITUDE OF IMPACT						

Magnitude of Impact against Value (BS 7913:2013 figure 2)

3. CONSERVATION PRINCIPLES

The ownership and use of the historic asset that will have the least impact on the fabric of the building and setting, but keep the value, historic character as well as maintaining the current use of the building as an educational institution.

Should there be any change of use of the building, this always needs to enhance the community and be carried out in accordance with all planning legislation and building regulations.

It is also recommended that a 10-year management and maintenance plan be implemented.

According to BS 7913:2013 5.2 Heritage management principles; “Historic buildings should be maintained for the benefit and enjoyment of current and future generations.”

The first conservation principle that should be met, is regarding the ownership and use of the historic asset, it is very important to conserve and enhance the historic asset for future generations. The Old College Buildings, has been in use as an educational institution for over 200 years, having strong historic educational links and milestones in Wales, without another institution having such high significance in Wales. This is reason enough to continue the history of the educational institution for everyone now and in the future to use and benefit from the conservation and maintenance of this historic asset.

All new work that has been proposed for the historic asset needs to adhere to the core principles and respect the setting and the historic significance of the affected asset, it will always need to add value in the present and future (CADW, 2011).

As Stated in Conservation Principles for sustainable management of the historic environment in Wales; “New work must respect the setting and significance of the historic assets affected. The quality of design and execution must add value to that site and its setting, both now and in the future”.

The Old College Building situated at Lampeter Campus has a very high significance value. It is a grade II* listed building as a group of exceptional educational buildings with architectural interest, it is a national historic importance with association with two major architects and has significant architectural quality associated to the building (CADW, 2012). It is recommended that there is an immediate list of priority repairs and enhancements that are required to re-establish the historic asset to a maintainable, original, and enhanced state.

Proposals for work should be completed with an avoidance to harm wherever possible, documented records should be kept whenever there has been a change (British Standards, 2013).

BS 7913:2013 5.6.7 Management strategy, a management strategy should be discussed with all stakeholders, and it needs to be an ongoing process (British Standards, 2013). It is recommended that a 10-year management and maintenance plan is implemented.

The purpose of the repair work is to ensure the building is returned to a good condition while still holding its significance as an historic asset (British Standards, 2013). There is urgent major repair work required on the fabric of the building as well as the roof and other minor repair work. This work will ensure that the building remains in a good condition to ensure the lifespan of the historic asset as well as meeting sustainable targets.

3.1 Objectives

The main objective of the proposed works, repairs and maintenance program of the Old College building is to ensure that, it will secure a revenue for the future as well as creating a historic asset that feeds back to the community to ensure it is a long-lasting asset that is preserved in the most cost-effective way possible.

Preserving one of the most important educational institutions in Wales as a Grade II* listed building with triple SI is an important cultural and historical significance.

The biggest failing with the old college building is the fabric of the building, improve and upgrade the building fabric to allow the building to reject moisture and not retain it. Installation of efficient heating systems, incorporating solar panels and better ventilation.

The below tables propose the works to take place to bring the building up to standard and then ensure that a full maintenance program is in place to conserve the building going forward.

4. PROPOSED WORKS

4.1 Works to external façade & building fabric.

Ensuring that the significant old college building has a long-term survival, the building that is over 200 years old requires major repair work to the façade of the entire building. It is extremely important to bring the façade up to standard and have a long-lasting maintenance program in place to ensure it does not degrade to such disrepair in the future.

PROPOSED WORK	4.1.2 Façade Repairs Carry out major repair works to the entire façade of the majorly degraded façade of the building. An external wall insulation system is proposed “warmshell external wall insulation” which is a system that can wrap around timber or masonry ensuring. Once completed a new lime render is to be applied across the entire building to match all previous rendering design. Samples will need to be taken of the current lime render to match the new render to be applied. Testing will need to be carried out to get the exact match. Existing ornate stonework will need to be removed and repaired by using cast stone repair methods, chosen for versatility, bespoke design moulds which enables restoration of stonework to be exact shape and style it is also a cost effective method. This will then be returned to the building once the EWI is completed.
OBJECTIVE	To bring the current degraded and badly maintained damp envelope up to standard to preserve the asset for the future.
SIGNIFICANCE OF EFFECTED FABRIC	The fabric has evidential and aesthetic value and is a specialised skill in modern day to apply lime rendering.
BENEFICIAL IMPACT	Bring the envelope up to standard maintain the entire building ensuring it is kept dry, energy efficient and comfortable to be in.
HARMFULL IMPACT	Loss in some historic value, by removing all old lime render and



	replacing with EWI and new lime render.	
PROPOSED SOLUTION	This work needs to be closely monitored and planned to ensure that any other degraded elements are repaired this is considered essential work to ensure the life cycle of the building.	

Table 2 external works and façade repairs to envelope of building

4.2 Works to windows, window reveals, and sills The windows, reveals and sills of all the windows are in bad condition. Replacement and repair work to take place. This needs to be carefully selected and only essential work to be carried out.		
PROPOSED WORK	4.2.2 Window replacement & repairs Replace windows where possible with double glazed to match current window style using conservation or period bespoke double glazed window units where possible. Where this is not possible secondary glazing will be applied this can only be applied once all windows, reveals, and seals have been repaired. Chisel away and repair stonework on window reveals, and sills replace and ensure watertight. This needs to be done and matched to the new EWI and new rendering.	
OBJECTIVE	To bring the current degraded and badly maintained damp windows up to a maintainable standard to ensure they keep out moisture and add to the thermal insulation of the building to assist in ensuring the building becomes energy efficient and comfortable.	
SIGNIFICANCE OF EFFECTED FABRIC	The material and design of the windows around the entire old college building has evidential, historic, and aesthetic value of high significance.	
BENEFICIAL IMPACT	Bring the envelope up to standard maintain the entire building ensuring it is kept dry, energy efficient and comfortable to be in.	

HARMFUL IMPACT	Loss in a lot of historic value, by replacing original windows where possible.	
PROPOSED SOLUTION	A full survey of all the windows throughout the old college building to ensure this can be matched and only essential replacements completed where possible. Full window assessment and specifications to be completed and bespoke designs considered to match. This work needs to be closely monitored and planned to ensure that any other degraded elements are repaired this is considered essential work to ensure the life cycle of the building.	

Table 3 window replacement and repair work

4.3 Heating upgrades Essential new heating upgrades and system is to be installed, along with the new thermal values of the building fabric and windows.		
PROPOSED WORK	<i>4.3.2 New heating system</i> A completely new heating system consisting of a mix of electric radiators (it may be possible to convert any existing radiators that have historical value) and under floor heating is proposed this needs to be designed in such a way that it does not cause any damage to any historic flooring within the building, and this will work in conjunction with the new thermal values of the envelope of the building ensuring it is energy efficient and can meet new energy efficiency standards and ratings. A Very good to excellent rating on BREEAM would be required. Ground source heat pump system is proposed, due to the amount of space on the site, this will be viable.	
OBJECTIVE	The need to upgrade the building to ensure it is a comfortable and dry building, this will ensure that the building will meet standards and be economically sustainable and environmentally sustainable.	
SIGNIFICANCE OF EFFECTED FABRIC	There is very little evidential, historic, and aesthetic value in most of the old college building, but some areas do have high value. There are some heating and radiators that have medium value due to	

	the installation date 1963 when central heating was first installed.	
BENEFICIAL IMPACT	Keep the building comfortable, dry and warm throughout the year while keeping costs low spend now to save later.	
HARMFUL IMPACT	Loss in a lot of historic value, if it is determined to replace any original radiators in the building, that hold historical value. Specialists need to investigate the possibility for under floor heating, to ensure no damage to the existing historical floors occur.	
PROPOSED SOLUTION	A full survey of the heating system and radiators as well as all the pipework for the heating system needs to be carried out. U-values of the building will need to be calculated for the proposed works and a new ground source heating system will be fitted to the required specification to ensure the building will keep moisture out and the internals dry and comfortable for all. Checking for any flooring that has had direct contact to the ground needs to take place, this is to ensure any damp or suspected damp is dealt with prior to installation of under floor heating.	

Table 4 Heating system replacement

4.4 Roof repair work and chimney Essential roof repair work needs to take place, as well as chimney repair work on the chimneys that have not had upgrades and repairs.		
PROPOSED WORK	4.4.2 Roof and chimney repair Installation of all new membranes wherever necessary on all flat roofs, as well as repair works to other pitched roof with slate tiles. Carefully check all slate tiles and replace where necessary. Removal of all guttering and cleaning and repair work to gutters and pipping. All leadwork and flashing replacement where necessary. All copings and parapets to be removed and set aside for repair works to take place, these will need to be repaired and brought back to standard before replacing. All roof	

	ends rafters and timber trusses need to be checked and replaced where necessary. Chimney's will need to be made watertight and all lead flashings need to be replaced, hack off render where necessary and repair allow for rebuilding of chimney to match other upgraded chimney's with blue brick to match.	 
OBJECTIVE	The need to upgrade the roof and chimney and gutters to ensure that no water leaks and the building is watertight, comfortable, and dry. This will ensure the longevity of the roof structure and the entire building.	
SIGNIFICANCE OF EFFECTED FABRIC	There is very little evidential, historic, and some medium aesthetic value to most of the roof structures and chimneys.	
BENEFICIAL IMPACT	Keep the building watertight, and warm throughout the year while keeping costs low by ensuring the entire roof structure is up to standard.	
HARMFUL IMPACT	Major repair works can always uncover other issues with the building structure. The erection of scaffolding to the building needs to take place for these repair works to be carried out this can lead to damage to the existing historical asset.	
PROPOSED SOLUTION	A full roof survey needs to be carried out for all works to be taken place, only necessary work to take place. Listed building consent is required for the erecting of scaffolding for the roof repairs. Adequate load spreading as well as protection to the fabric of the building will be required. Preliminary design will need to be agreed on and adjusted if need be. The need to tie the scaffold to the building will need to be explored to reduce any damage to the fabric this can be avoided by keeping the height of the scaffold low and bracing verticals to the ground thereby increasing the width at ground level.	

Table 5 Roof repair work

4.5 Solar panels

To maintain the building and ensure it meets sustainability, and carbon net zero it would be essential to add solar panels to assist with the energy usage and storage of the old college building.



PROPOSED WORK	<i>4.5.2 Solar panels</i> It is proposed to install solar panels across the building on all south facing roof pitches as well as any flat roofs.
OBJECTIVE	To assist with net zero targets and energy efficiency of the old college building.
SIGNIFICANCE OF EFFECTED FABRIC	There is very little evidential, historic, and aesthetic value lost in installing solar panels.
BENEFICIAL IMPACT	Assist with energy efficiency BREEAM and net zero targets.
HARMFUL IMPACT	Loss aesthetic value on the roofs of the building where installation will be taking place.
PROPOSED SOLUTION	Apply for LBC Listed Building Consent. Ensure that the installation of the panels does not affect the structure of the building as well as ensuring that the installation can be reversed without leaving major repair works to take place. There is also enough grounds space to possible be used to place the solar panels if the roof cannot be used.

Table 6 Solar panels

TASK 2

INTRODUCTION

The conservation of any building is essential and includes careful management of any changes that need to take place. The implications of any proposed changes is important to understand. For any listed building that require changes it needs one or a few of the following, a Heritage Impact Assessment, Heritage Impact Statement, LBC Listed Building Consent or Conservation Area Consent to carry out these changes. A Heritage Impact Assessment can assist in determining the best way to go about with these necessary changes or upgrades to a listed building (CADW, 2017).

A historic environment is a major part of Wales's cultural heritage and identity, this consists of many individual features known as historic assets, these can include an individual building, parks, gardens, archaeological remains, conservation areas, landscapes, and townscapes as well as world heritage sites. Changes need to be managed carefully to protect these historic assets and conservation is managing these changes appropriately (CADW, 2024).

SUMMARY OF VALUES AND SIGNIFICANCE

To determine the changes that need to take place to maintain and conserve a historic asset it is vital to understand the significance of that asset as well as the value that they have. This is done by applying four principles, looking at the evidential value, historical value, aesthetic value, and communal value (CADW, 2024).

Evidential Value

The past human activity and how the asset was made and used has high significance as reported in the HIA, beginning in the 1800's when Bishop Burgess proposed a college, the Old College building was designed by a neo-classical British architect C R Cockerell and it was based on 17th century prototypes of Oxford (British Listed Buildings, 2012).

Historical Value

The importance of the historical value of the Old College Building in Lampeter has been evident in its association with historic figures and origin of education and higher education in Wales.

The only other universities to predate the St David College in Lampeter is Oxford, Cambridge, and Scotland throughout Britain, St David College in Lampeter received its charter in 1828 (Archive Hub, 2024).

Also becoming the first college to become affiliated to Oxford and Cambridge Universities. The University was established to accommodate the diocese of the ministry men in training who could not afford a university, establishing a path for Welsh graduates (Archive Hub, 2024). The building holds important historical value and architectural value, as well as the fact it has served for over 200 years as a higher educational institution of Wales (Business News Wales, 2022).

Aesthetic Value

The Old College has a high significance with aesthetic value as reported in the HIA, it was designed on the prototype of the 17th Century Oxford, The college's design by John Foster 1822-1827 and utilising earlier

designs 1819 -1821 from a neo-classical British architect C R Cockerell, simplified Tudor Gothic rendered quadrant construction (Archive Hub, 2024).

Communal Value

The communal value of the Old College building is of high significance being that it's a historic educational institution for over 200 years, this adding value to the surrounding Welsh community, also being the first college associated with Oxford and Cambridge universities which represents a very high status in education.

SUMMARY OF PHILOSOPHIES & PRINCIPLES IN ACTION

With the determination of the high significance and value of the historic building being the Old College, sustainable management of the asset and the conservation of the asset is essential to ensure that everyone can use it, enjoy and benefit from the Old College building now and for the future generations (CADW, 2024).

It is important to understand that some historic assets will be lost, while others that meet the tests set out in Conservation Principles by the Welsh government will be sustained and conserved (CADW, 2011).

These principles in action along with the philosophies should assist in ensuring that any possible conflicts that may arise will be resolved.

Routine maintenance and management is essential in the conservation of historic assets and this needs to be appropriate to the historic asset you are dealing with. The values of historic assets can be lost if the management and maintenance of the asset is not adhered to. Getting these lapsed regimes reinstated can ensure that in Wales we recover cultural and natural heritage values (CADW, 2011).

There is less significance in most of the internals of the Old College Building. There for any repair work or routine maintenance that needs to take place regarding gas, electric, fire etc should always be adhered to and kept in date as well as following the regulations in place with these as well. Any replacement equipment should not be an issue to replace if need be. As mentioned previously regarding routine maintenance once these routines and regimes have been lost is vitally important for the upkeep of the building internally which is important when the building is in a bad state of disrepair. Small and simple things checking the external of the buildings gutters, chimneys, roof coverings and channels regular cleaning and clearing to ensure no blockages and or leaks are penetrating the fabric of the building, there is not a lot of planning or heavy skillsets required for the basic tasks at the Lampeter building but this can ensure fabric remains intact and water tight, this will also keep costs down as any issues should be found and dealt with promptly.

Good record keeping on maintenance schedules and work carried out need to be kept.

Monitoring and consistent surveillance should be ongoing to enhance and detect continual improvement for planned maintenance as well as repair and renewals, temporary solutions need to be implemented to prevent problems escalating if no permanent solution is in place until such time one can be implemented (CADW, 2011).

Repair is desirable in maintaining a historic asset to sustain the values if there is sufficient information to understand the impacts of the proposed works on the significance of the historic asset as well as the long-

term consequences and not designed to be prejudice to any alternative solutions for the future as well as avoid and mitigate or minimise harm should the proposals to sustain the values conflict. The work should ensure long lasting repair and only deem what is necessary to be repaired. Repair work, techniques and materials that prove to have a lifespan from past performance or closely matched should be recommended. It is important to note that not all past building materials or techniques were long lasting. Another important factor to consider is that not all techniques where there is a use of original materials can sometimes do more damage than repair of the original fabrics this is when you need to allow the more original fabric to be retained (CADW, 2011).

There is a significant amount of repair works required on the Old College Building, the entire façade needs to be investigated and full plans to carry out repair work, all the stonework will need to be repaired either in situ or removed recast and fitted. The roof of the building also requires a in depth survey, and it will need to be determined if it can sustain repair works or an entire new roof and roofing structure to the building. The impact of the roof repair or replacement will need to be determined and only if deemed necessary carry out repair work this is to ensure the longevity of the roof and protect the building while also maintaining the historical significance of the asset. Once this is completed, the roof will fall into a category of periodic renewal when deemed necessary it is advised every 25 – 30 years although some slate roofs can last 100 years.

Periodic renewal or intermittent replacement of components within the historic asset is warranted when failure to renew would result in the deterioration of the historic asset and the significance of the asset. This intermittent replacement does differ from maintenance as it will occur on a longer life cycle and is more likely to be a drastic change and will have an impact on the aesthetic value of the historic asset. This can also uncover the original methods or techniques used as well as evidence provided of any earlier phases in the history of the asset (CADW, 2011).

Any loss of evidence to a historical asset would never be acceptable, however there are exceptions to this such as preservation in situ for instance with Archaeological discoveries it is not always practical and the potential to gather knowledge is not possible unless more evasive and destructive techniques were used, and only if it outweighs the loss of the primary resource. These archaeological interventions require skilled teams with appropriate resources, keeping records, funding and analysis needs to be within the set scope and timetable and ensure other elements and values are not affected by the work as well as any elements left exposed. This type of evidence and intervention must be justified by the gaining of knowledge in relation to the impact on the resource (CADW, 2011).

Restoration can only be done and accepted if it enhances the heritage value and outweighs the values that would have been lost, it needs to be justified by overriding evidence of the evolution of the asset, and the current asset is in significant decay and or mis-managed all new work needs to respect the previous work and ensure that all maintenance going forward will enable sustainable management of the asset (CADW, 2011).

New work and alteration needs to be justified, completely understanding the impacts from the proposal and not harm the material values of the historic asset, it needs to include adding value to the asset and ensure that long-term consequences be reversible and or begin to ensure that any future solutions can be carried out without implication (CADW, 2011).

ASSET MANAGEMENT

There will always be changes to a historic asset and the environment, due to decay in the natural environment damage caused or by use of the asset (CADW, 2011). It is vitally important that once the historic asset has been assessed, heritage and historical values of significance determined that a management plan is put in place to ensure the longevity of the asset for today and for the future for all to enjoy.

According to ISO 55000 asset management is defined as: “co-ordinated activity of an organisation to realise value from assets”.

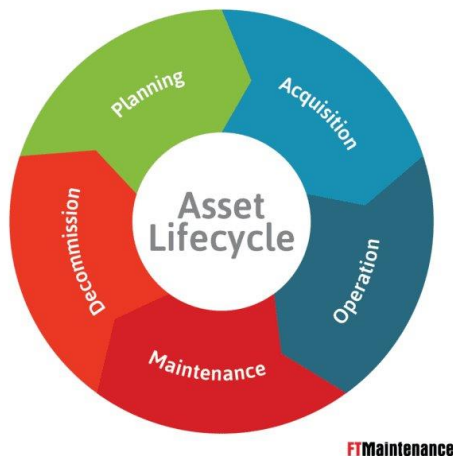


Image 4 Asset Lifecycle

A typical lifecycle of an asset goes from “life” to “death” while going through 5 general stages:

- Planning
- Acquisition
- Operation
- Maintenance
- Disposal

Successful asset management is based on collection and management of crucial asset data (FT Maintenance, 2021).

There are various ways some historic assets are managed, and they don’t all work effectively depending on the nature and the state of the asset, there is **Planned Preventative Maintenance, run to fail, and statutory only maintenance management** programs.

Preventative Maintenance is extremely important in old buildings, and this can reduce the likelihood of decay and is the opposite of corrective maintenance which the replacement of decayed materials. Preventative maintenance can remove the need for repairs at a later stage and can prevent the loss of original materials (SPAB, 2024). Having a PPM survey for any asset allows the owners of the asset to understand the current state the asset is in this then allows for a plan to ensure that the asset is maintained, and all the elements of the asset perform as they were intended (RICS, 2022).

PPM programmes span usually over 5 – 10 years but can also be up to 30 years, these programmes should be regularly reviewed (Lemen, 2022). Advantages of PPM ensures that any issues that arise are addressed

before they develop further, this minimises the repair costs or replacement costs as well as disruption to the asset, and the use of the asset during repair (Olley, 2023).

Once a PPM is in place and prioritised you can align your skill set to meet the needs of each task and assigning tasks to the correct level of training within your skillset, it is also advisable to have an ongoing training system in place and to include recurring work into the schedule this will ensure you alleviate potential problems with enough time to prevent downtime.

Advantages include:

- Less downtime of asset or equipment
- Less interruptions
- Longer life cycle of asset or equipment
- Efficiency improvements
- Increased safety for all using the asset or equipment.
- Compliance with OSHA
- Savings

Disadvantages include:

- Upfront costs
- Labour and resource intensive
- Over maintenance

(Upkeep, 2024)

Run to fail or reactive maintenance programmes is when the asset or equipment is used until it fails completely and then a repair or replacement takes place. This can reduce the cost but effectively only short-term costs, there is not much planning required for this type of programme and it is a simple process that does not take much planning, a problem occurs and then only does it need to be actioned. There are many downfalls to this type of maintenance management program, such as the unpredictability of equipment, downtime can come at any time and cause major disruptions to the use of the asset or even delays, this can also cause a shorter life cycle of the asset. In turn these can all add up in cost and an overall higher long-term cost as well as unforeseen expenses due to the lack of knowledge on the current state of the asset (TWI, 2024).

Statutory maintenance or compliance is usually the laws laid out by the government and are enforced by the government that the business or facility must adhere to. A few examples where a building or facility must comply to are fire safety, electrical, gas, water, and asbestos etc. failure to adhere to these regulations can lead to a fine and court (MSL, 2024). This type of maintenance program is not cost effective, as with run to fail when something does break due to no or low maintenance there will be a huge cost to repair or replace, this also usually requires expertise in the field when dealing with gas or electricity for example.

The organisation needs to have a structured support system when managing the maintenance of an asset, personnel assigned to the service support group, will have experience within their expertise such as maintenance staff, operations, technical and engineering with a sound knowledge of the relevant asset or equipment. Below in image 5 is typical organisational flow chart for asset management (Hastings, 2015).

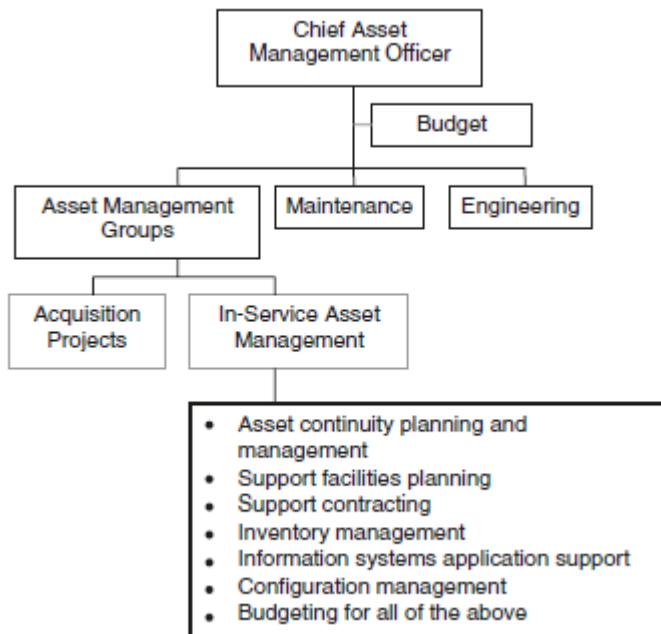


Image 5 Organisation for management of in-service assets (Hastings, 2015).

The Lampeter Old College building is a Grade: II* Date Listed: 21 September 1964 Cadw Building, of high significance and heritage value to Wales and the Lampeter community it is of great importance to ensure that the building is maintained and managed in a sustainable way to ensure its longevity and benefit the community for all today and in the future.

The current condition of the historic asset is in a bad state of disrepair with no formal and official management and maintenance strategy in place, the current system does not provide information for others to assist with the maintenance program. The Old College Building is running partly RTF run to fail and Statutory Maintenance management program. The efficiency of the building is extremely low and there are extreme issues with damp and repair works required throughout the building fabric. It is vital to identify the necessary tasks that are required to bring the building up to standard, and from that point implement a maintenance plan. This however does mean that a large sum needs to be spent upfront on the asset.

Run to fail is a very dangerous approach to take on a listed building of this age, as this essentially means there is no maintenance program at all in place.

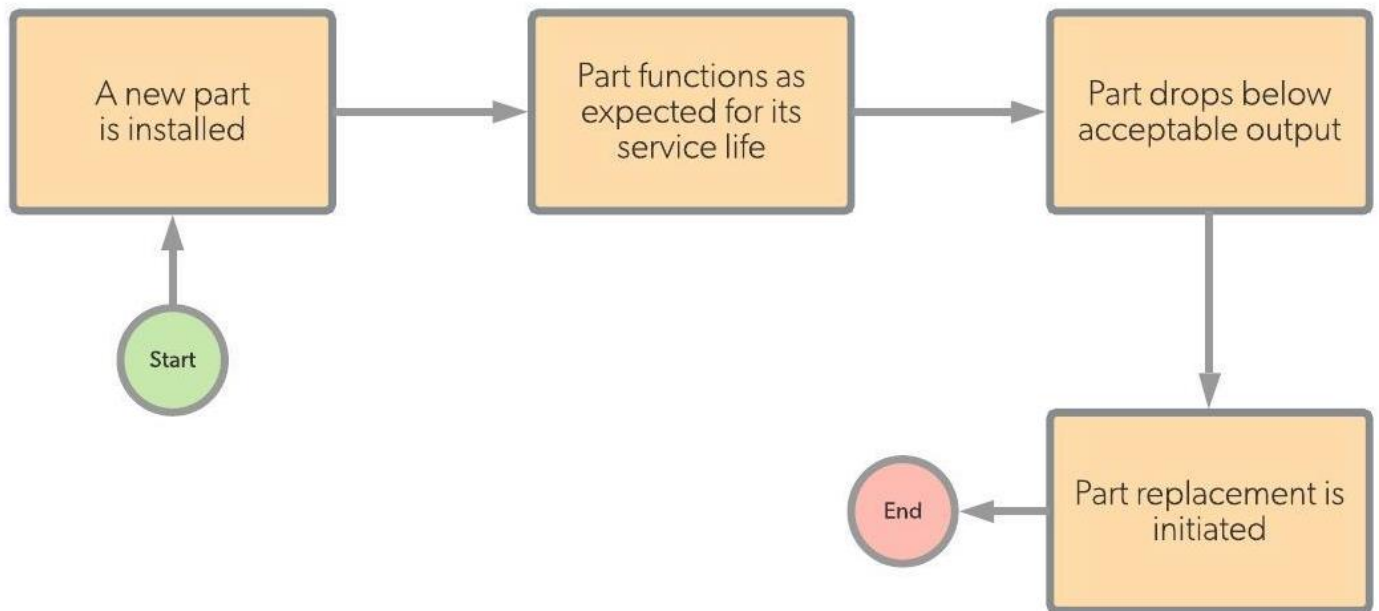


Image 6 run to fail workflow diagram.

Above is a simple diagram representing the run to fail strategy.

Run to fail maintenance is more suitable for disposable assets with single use and not a long life span and assets which require a low capital output, run to fail is more often referred to as crisis maintenance (Upkeep, 2024).

CONCLUSION

The main objective of preserving and repairing of historic buildings would be to ensure that long term deterioration is kept at a minimum but at the same time conserve what can be kept, to sustain the buildings significance as a historic asset. Preventative maintenance is the best approach once a building has been brought up to standard, a program then put in place to ensure that the cultural and historical heritage and significance of the asset is maintained and prolonged for today and the future generations to make use of. This will in turn maximise the life of the building, by delaying any decay and failure within the building fabric and assets within the building. The Old University Building will need a bigger outlay of financial assistance to get the building up to standard, from this point a preventative maintenance program needs to be established. Good records need to be kept, with regular inspections put in place it is important to always be prepared and have professionals in the field at hand to be called on when required. The management of the maintenance program is vital to the success of whichever maintenance program is chosen for a historic building; the best maintenance program can be set up but will be doomed to fail if it is not managed correctly. Identifying the priority areas that need to be repaired or replaced is the starting point. Ensuring that the building also meets all regulatory requirements is a top priority specially in terms of fire safety and energy efficiency. Furthermore, continuous training and education for all the management and maintenance staff is important and always having a contingency plan in place.

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