

Application of green construction to an archival facility

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Introduction

Archives are cultural and administrative institutions that preserve and make available society's collective memories captured in archival materials. Archival buildings are symbolic and substantial space that connects us to the past and our future generation to us. Therefore **sustainable development and long-term operation of archives is critical to protect our administrative and cultural heritage.**

Applying green construction to an archival facility is one way to increase sustainability of archives. Green construction techniques provide various environmental, social and economic benefits. Moreover **through building green archival structures, archivists can respond to social concerns about harmoniously living with nature.**

As archivists, what do we need to know and what should we ask of architects for applying green construction to an archival facility?

Step1. Understanding archival facility

Before discussing "green," the archivist has to understand the unique characteristics of archival facilities.

Archival facility figure

1. The primary mission of archives is to guarantee the long term preservation and accessibility of archival materials. Thus archival facilities provide for **collection needs** (protect holdings against fire, flooding, air pollution, humidity, sunlight, insects, animals, and thieves with highest level of environmental control) and **people needs** (provide safe and comfortable work environment for staff and users).
2. The design of archival buildings should be **flexible and adaptable to meet future changes** (changes of users, formats of holdings, technology, quantity of holdings, and staff requirements)
3. The site selection, building type, and interior design of archival buildings can be **different based on types of archives**: Government (federal, state, and local) archives, academic archives (colleges and records of universities), collecting archives (historical society and cultural institution), and organizational archives (businesses, corporations, and religious archives)
4. Elements of the archival structure should be selected in consideration of the **archival requirements**. (i.e. Exterior windows should not open, be as small as possible, and use double glazing to reduce heat gain or loss through windows and are not recommended in storage, exhibit area, and reading room due to UV exposure to holdings and security concerns)

Step2. Application of green construction to archival facilities

Green construction methods are available with various environmental, social and economic benefits. However archivists should consider what kinds of green construction will be suitable and applicable for their own archival facilities. Benefits as well as risks should be addressed. Risks should be minimized.

Green application	Benefits for archives	Risks to archives
Utilize renewable energy resources (Solar/Wind/Hydro/Biomass energy)	- Save energy bill - Support sustainable energy supply, especially for increasing demand on electronic equipment	
Utilize natural daylight for office and lobby areas	- Save energy bill	- Can cause UV exposure to holdings
Use automatic lighting controls	- Save energy bill - Reduce unnecessary light exposure to holdings	- Greater initial cost of construction
Use renewable construction materials	- Less direct benefit for archives, but will be helpful to reduce solid waste disposal fees	
Utilize natural air conditioning	- Save energy bill - Can prevent damage in case of technological failure of high tech climate control system.	- Can bring air pollutant and humidity from outside. - Can cause regular significant changes in humidity levels
Berm against the building	- Reduce gain and loss of heat - Support sustainable temperature control	- Can cause water leaking problem - Can increase humidity
Plant trees around the building	- Can help reduce gain of heat by mitigating urban heat island effects	- Can cause insects and animal problems
Plant local, drought resistant and pest resistant plants in the landscaping	- Reduce water consumption and toxic insect control material - Can help reduce gain of heat by mitigating urban heat island effects	
Use green roof technique	- Reduce gain of heat through a roof - Can be helpful for fire suppression	- Can cause roof leakage, roof collapse, insects, animal, and fungi problems
Use of a storm water management and rainwater catch system	- Reduce storm water utility fees - Support sustainable water supply - Can be helpful for fire suppression	- Can cause water leaking problem especially for an underground level of an archival facility