Building of the National Records and Archives Authority - NRAA in the Sultanate of Oman: the Establishment, Designing, and Magnificence Construction

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ABSTRACT

The National Archives building is an important building in the State; it contains the memory and achievements of the nation over the ages. Preservation from the various risks and disaster is the national duty, therefore the building of the National Archives must be designed and built in accordance with the specifications in terms of location, construction and design, adaptation, emergency exits and administrative offices, repositories, workshops, exhibitions hall and reading room. This research focuses on the National Records and Archives Authority building in the Sultanate of Oman, the current (rented building) and the new building which is under the process of construction.

Key words: location, design, emergency exits, technical area, workshops, repositories, administrative offices, equipment, halls

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La costruzione dell'Autorità nazionale per i documenti e gli archivi - NRAA del Sultanato dell'Oman: fondazione, progettazione e sfarzosa costruzione

SINTESI

Gli edifici degli Archivi nazionali sono degli importanti costruzioni, contenenti la memoria e le conquiste della nazione nel corso dei secoli. Il patrimonio nazionale è preservato dai temuti rischi e disastri, perché l'Archivio è fondato in conformità con le specifiche in termini di ubicazione, costruzione e progettazione, l'adattamento, le uscite di sicurezza e gli uffici amministrativi, i depositi, la sala mostre, la sala lettura. Il presente articolo tratterà della fondazione dell'Autorità nazionale per i documenti e gli archivi del Sultanato dell'Oman, sia nell'edificio attuale (in affitto) che nell'erigendo palazzo.

Parole chiave: luogo, progettazione, uscite di emergenza, area tecnica, laboratori, depositi, uffici amministrativi, attrezzatura, stanze

Stavba Državnega arhiva - NRAA v Sultanatu Oman: vzpostavitev, oblikovanje in pomen gradnje

IZVLEČEK

Stavbe državnega arhiva so pomembne za državo, saj so v njih shranjeni spomini in dosežki naroda skozi dolga leta. Ohranjanje pred nevarnostmi in nesrečami, ki pretijo iz različnih razlogov, je nacionalna dolžnost. Tako mora biti zgraditev stavbe državnega arhiva v skladu s specifičnostmi glede kraja, konstrukcije in oblike, adaptacije, zasilnih izhodov ter pisarn, skladišč, delavnic, razstavnih prostorov, čitalnice. Prispevek podaja raziskavo glede stavb državnega arhiva v Sultanatu Oman, in sicer trenutne stavbe, ki je v najemu ter nove stavbe, ki je v teku izgradnje.

Ključne besede: lokacija, oblikovanje, zasilni izhodi, tehnično področje, delavnice, skladišča, pisarne, prostori za opremo

1 Introduction

Archives building is one of the most important buildings in the country because it contains and preserves the records of the nation memory and its performance. National Records and Archives Authority- NRAA in Oman was established in 2007. Before its establishment there was no agency that would supervise the field of records. The governmental bodies kept their documents in their own storage without organizing and describing them. NRAA started to reorganize the field of records in Oman from the beginning with the goal to develop the archival service into the most modern archival system in the region. NRAA building is considered as a typical building since it follows international standard in records preservation. The building is designed as modern in safety standards, construction, emergency exits, repository, halls, workshops, laboratories and exhibitions. It highlights the NRAA activity and its holdings.

2 Site

Designing the building requires the full cooperation between the technical staff (engineers with various specializations) and the officials. NRAA not only responsible for their property, the archive law refer in the Article (22) "The *Intermediary Documents shall be kept with the relative body in places designated for such purpose and shall be under its responsibility during the specified retention periods. These documents can be viewed according to the rules and procedures defined by the Regulation. Each relevant*

body shall obtain the Authority's approval when setting up a suitable place to keep its intermediary documents so as to apply the specifications defined by the Authority" (Records and Archives Law, 2007).

The Muscat Government has seen development since 1970, its Northern cast from Muttrah to Seeb. More recently additional development area have been expanded to cover more than 40KM. In the recent years, the coastal area of Oman suffered from the consequences of two cyclonic events (Gonu in 2007, and Phet in 2010) along with periodic floods usually associated with the monsoons. The intended plot is located near the airport area, between catchment area of wadi[1], airport and others.

Figure 1: shows the NRAA location and roads entering to the building

All the building specifications or records repositories which should following in NRAA are equal required for governmental institutions, and the other agenesis were under the Law to keep all documents in the safe location

The first step in the process of creating and archival building is the selection of a site. Site selection is vital in ensuring that each building will ultimately be in function to its maximum potential and it will provide an appropriate service to the user (Ling, 1998). When selecting the site, many factors should be addressed. No matter the size - how large or small the site is - and regardless of what kind of institutions, weather the Archives or the Governmental institutions, the site should meet the following criteria in order to ensure the safety:

- Away from floods and waterways.

The site must be clear of the rivers, waterways, creeks and dumps. In short, any major water supply. The reason is to ensure the building against flood or any natural disaster. However, the humidity of the ocean or river can cause the damage on the building itself and on the documents.

- Away from pollution resources.

The site should be away from any industrial area, e.g. refinery, chemical plants, cement factories, or any kind of factory that can emit the pollution.

- Located within or close to the departments that create the documents.

The site should be located close to the Agencies which under the Law have to transfer the records to the Archives. It should facilitate the communication between the Archives and entities which under

1. Wadi means "the way of water coming from the mountains the rain in high speed".

the Law have to transfer the records to the Archives. It is also easier to dispose the documents to the archive after the intermediate period.

- Away from fire- threatening establishment and firm districts subject to dampness

Away from fire- threatening establishments will secure the building and documents in the same time.

Most of archival buildings in the world, are located in the sites that consider the criteria mentioned above. The table below shows some of the sites chosen by major archive institutions in the world (Ling, 1998).

Facility	Institutions	Distance from the CBD	Site surrounds
Villawood	National Archives of Australia	25 KM from Sydney	Migrant hostel, migrant detention center, paint factory, houses
Kew	Public Records Office, UK	16 KM from London	Houses
College Park	National Archives and Records Administration USA	16 KM from Washington	Houses, forest
Gatineau	National Archives of Canada	12 Km Ottawa	Fields, rainwater run-off pond

3 NRAA building

The building of the National Records and Archives Authority is located on the East. The site is known as Oman cultural complex (OCC). It includes NRAA, the National Theater and the National library and other facilities. NRAA as a part of OCC building and the canopy covers all three different buildings. The canopy is made of a farmed steel core and smooth white concrete facing a compact unit which includes an array of array of perforations in accordance with the general design of the canopy.

NRAA is responsible for supporting the governmental bodies in records organization and in the same time for public by opening the reading rooms and helping them with the research. In this building we are planning different entrances for each category, including the staff entrance. These individual and specific entrances for public, staff and governmental agencies should not overlap.

3.1 Construction and design

In all buildings in the state a Heritage, particularly Islamic architectural style is prevalent. The rented NRAA building has an Islamic design. The building consists of 9 floors and it was an open space with no walls and no access. NRAA worked up the access from the main door until the 9th floor and formed the offices, workshops, meeting room, training hall laboratory, reading room and library.

This building is located in Muscat Governorate, it is near many governmental institutions, which makes it easy to communicate with, in order to disposing documents and contacting with cable of networks, and supporting them.

3.2 The building material

When contemplating the design of purpose built archive building, there is a general statement that should be made at the outset. What you should be seeking in environment which not effect in the human bodies in the same time in the documents. All elements of the building material have to play a part in this - the walls, doors, roof and floors. In NRAA building we consider that from the beginning. In all cases the NRAA is attentive to our staff and the environment.

3.3 Walls

In modern archives, walls are generally made of brick or concrete. In the recent, temporary building of NRAA, walls are made from cements and concrete. All walls which surround records repository area are fire rated. Walls in the laboratory and restoration labs have different specification. The walls can be easy removed to facilitate an expansion in order to move easier in working area, and to be able to deliver a new equipment in the future.

3.4 Doors

All doors in NRAA building are solid and fire rated. The rating is applied by the fire defenses system in the state. The doors are designed and built to create an effective seal when closed. All external glazed doors are in accordance with architectural design and adapted to the curtain wall system. Doors in repository are large enough to permit the movement of trolley laden with boxes, however, doors which face the building exterior are water proof to protect any leaking of water into the building.

3.5 Roofs

Roofs generally consist of steel deck, a cementation board and double membrane insulation topped with outside steel roofing panels. The roof cavity should also be insulated to prevent rains and heat transfer into the building.

3.6 Widows and lighting

In the archives building there should not be many windows, especially in the repository area, because sunlight may damage the documents. In NRAA building we consider that in the area for which we believe there might be direct effect to the documents and the equipment. However in some areas in the building window might not be found at all, such as microfilm labs.

As lighting is essential in workplace, lighting in NRAA building is controlled and specifically designed to provide complete control. Many different types of lighting are provided in the building. Lightening is carefully chosen so that it has no effect on equipment but is also helpful towards staff and visitors. In the workshops and labs special types of lighting are required, as well as in the repositories. In microfilm workshop area there should be darkness and many special lighting when the developing process is in working. The biology laboratory is designed according to the international standard specifications and precaution and safety. The laboratory is equipped with ceiling ultraviolet lamps (UV light) to eliminate the microbes on surface. This type of lighting will not turn on during working time. There are strict guidelines to the staff in this particular area, to turn the UV light on while leaving the working space.

3.7 Floors and ceiling

Floors and ceiling should be designed to minimize the potential influence of external conditions on the conditions inside the archives building.

Floors in NRAA are mostly from non-slippery ceramic and tiles, which can keep the temperature or cool the rooms. Laboratory floors, however, are made of Epoxy substance which makes the floor non-slippery and resistant against the growth of fungi, bacteria and insects.

Figure 2: the biology laboratory in NRAA

3.8 Sterilization and restoration Activity in NRAA

Sterilization activity began in NRAA effectively in 2011. In the beginning, VELOXY device was used whose function is to prevent Oxygen and substitute it with Nitrogen gas bubbles specially prepared for this purpose from polyester substance. In such a way, sterilization process takes a minimum of 21 days to complete elimination of insects and their eggs as well as all aerobic microorganism (Sterilization system in brief, 2015).

Figure 3: the Veloxy equipment used in NRAA

NRAA found out that this type of sterilization, which can destroy insects, fungi and bacteria fully, effected both, the documents and human body. Therefore they searched for alternative which would not affect the human body and environment and would at the same time meet following requirements:

- Effective in eliminating 100% of fungi, bacteria and insects.
- Secure on records and causes no yellowing or ageing effects on records.
- Safe on individuals working in records sterilization.
- Research continues for an effective device eliminating microorganisms without causing any damage to the records or the staff working in sterilization. Thus, NRAA's team has communicated and visited several countries with view to look at their experiences in sterilization field (Czech Republic, South Korea, and Malaysia)

Finally, NRAA took a decision to choose a BIOMASTER (BIO-MASTER 150AC) device from a Korean company which was launched on August 7 2014. Thus, the Sultanate of Oman and its NRAA are the first country in the Middle East to have this type of device, and the fourth in the world after Japan, Malaysia, and Lithuania.

Figure 4: the Bio- Master 150AC equipment used in NRAA

In restoration activity NRAA started earlier from its establishment, in order to address the affected documents, which was not saved in right conditions, because there was no institutions concerned on that. NRAA worked on entering the new equipment and appliances in restoration to maintain and save this cultural heritage, in the same time worked into training their staff in many archives around the world. Now restoration field in NRAA becoming one of the best labs in the region.

Figure 5: A sample of documents restored in NRAA

3.9 Repository loading (Repository specification, 2009)

a) Usually the repositories occupy the two- third or more of the archives building, and it is the same in NRAA. NRAA designed 16 repositories in their building. The main features of the repositories are as follows:

b) The columns and ceilings in the repositories should be constructed from steel and concrete to ensure to be a capable of carrying the weight of records. NRAA has its own specification for repositories and for all governmental agencies that transfer archives to NRAA. If the repository is not located in the ground floor, it must be capable of carrying the weight of the building and the steel shelves and the weight of the documents up to 1200 kg/m² if the shelves are of a fixed type and up to 2400 kg/m² when using mobile shelves. Whenever necessary, place the repository for the documents on an upper floor, however, the floor of the repository shall have the carrying capacity required for the weight of the documents to avoid the danger of the building collapsing.

c) The distance between the ceiling and floor of the repository shall be an average of three meters to allow the air to pass through all parts of the repository and the shelves.

d) All parts of the repository floor in each floor shall be at the same height level as that of the work places linked to the repository, so that trolleys used to carry the documents can pass easily.

e) A high level of insulation is required to protect the repository from the external factors of climate. The temperature inside the repository should be 18°C (could be extended to 20°C at the maximum), while the external temperature is high during a large portion of the year. Through adopting insulation methods energy consumption could be reduced

significantly. There are various methods for the insulation of building, the following are the main ones:

- Placing an insulation material, such as fiberglass, inside walls.
- Using small-size windows with total area not exceeding one-tenth of the wall size in which the windows are placed. The windows should be placed between the rows of shelves (see Annex 1). The small windows might impact the beauty of the facade of the building, therefore designers need to use nice shapes for this side so as to fit the windows small spaces to suitable frames.
- Designing external passages for the stores intended to reduce the reflection of sunlight on the building.
- Building a shade structure over the windows using cement or bricks.

e) Avoid using flammable materials inside the stores, either for floors or for walls.

f) The area of the stores for keeping documents is estimated on the basis of the volume of the existing documents in the government unit with an estimate of development so that the store remains in operation for a long time. It is worth mentioning that, in a linear scale, one kilometer of documents (10.000 folders of 10 cm thickness) requires a store that scans an average of 180 m² without calculating the thickness of walls (Annex 1).

g) The windows open in the direction of the shelves' rows, overlooking the hallway that separates the shelves.

When there is a massive number of audio, visual and electronic documents, a special store needs to be allocated for such materials as some of these media require to be stored at 12°C. They also require specific arrangements such as a transit room that separates the repository from the surrounding open area, so that the staff working in the place can move gradually from one place to another in order to avoid the sudden and huge change in temperature.

3.9.1 Shelves

Storing the documents in the good condition is one of the major interests in NRAA. When NRAA has to fix document shelves, they should consider many different standards and type of shelves such as below:

A. Fixed shelves:

- Fixed shelves are placed inside the repository with an arrangement that allows optimal use of the available area. (see Annex 2)
- Fixed shelves allow air circulation inside the repository in a way that prevents creating high humidity in some areas.
- Fixed shelves are not susceptible to faults when they are in use.
- Cost of the fixed shelves are less than the cost of the mobile shelves.

B. Mobile shelves:

- Mobile shelves are attached to each other while leaving one passage to be opened for the required row when handling documents. Such mechanism allows utilizing more than 90% of repository area compared with fixed shelves.
- Moving shelves do not allow air circulation inside the store which may create high humidity in some parts of the store.
- Cost of the mobile shelves is higher than the cost of the fixed shelves.
- Moving shelves are subject to faults when they are in use.

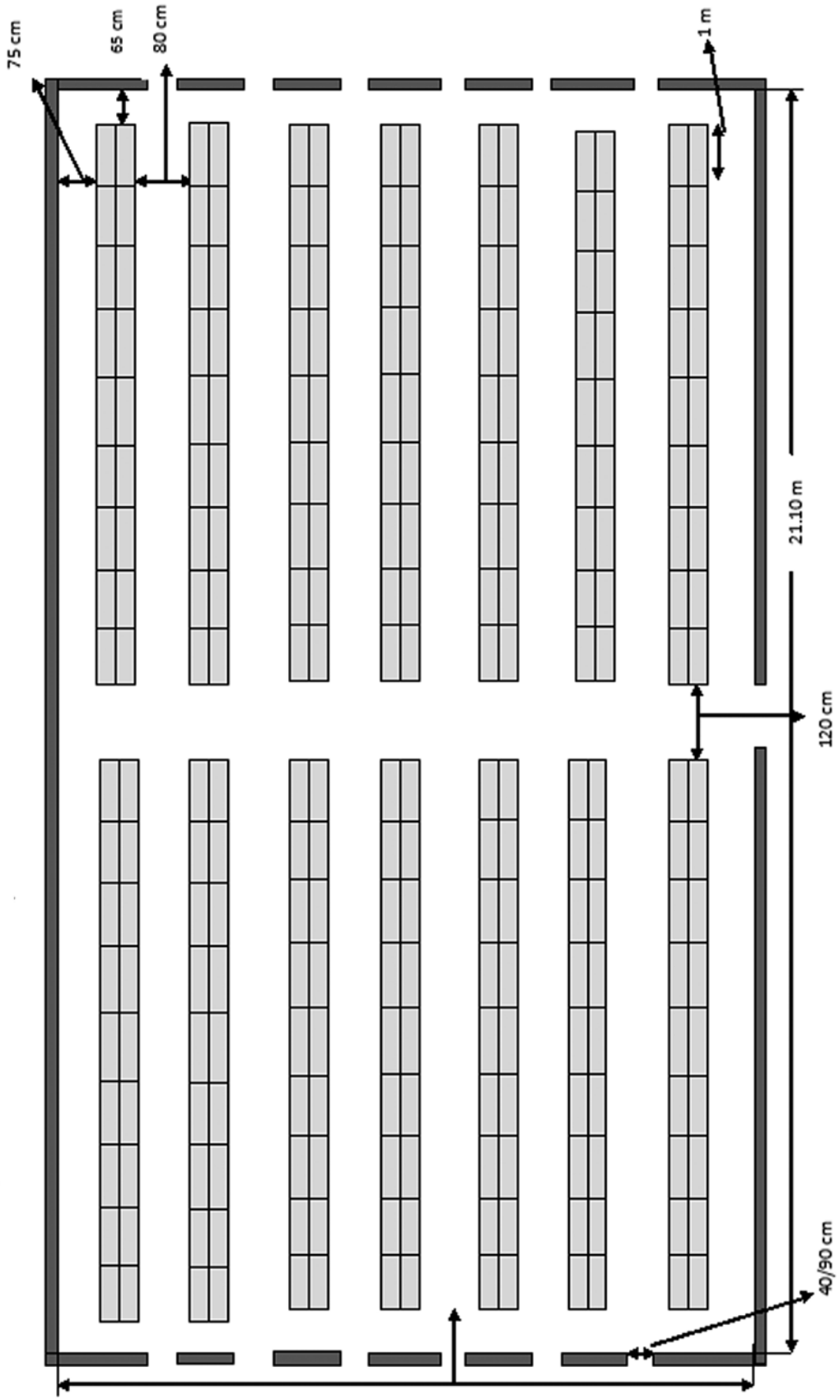
Special shelves:

Some special shelves are used for specific types of documents such as roll microforms, audio and video tapes, films, CDs and architectural drawings and maps. There are also armored storage units that are used to keep valuable and confidential documents.

As for the shelves, the international standards recommend using steel shelves because, in case of fire, they are protected against high temperature for specific period of time and, unlike wood, steel shelves are not susceptible to damage by insects like termites.

Figure 6: A sample of a new repository used in Government agency in Oman (moving selves)

Annex No.1: An example of a typical store to save documents



3.10 Types of attributes of spaces

An archives building generally requires a number of space type to meet its needs for staff and visitors. The spaces and attributes may include:

3.10.1 Offices

Administrative office: preferably an open offices between each other, to give the staff freedom of movement and easy contact with their colleagues in the department. In the same time it gives the officers a chance to follow up their staff.

3.10.2 Archivist office area

More environmentally separate space for preservations and equipment is required in this area. This area must be secure to access from public/ visitors.

In NRAA building many halls are available. The loading docks can be found in the ground floor of the building, where the transfer of archival material happens. The documents from the governments' agency should be first treated against insects, microbes, fungi and dust before being transferred to the repository. The main objective of this process is to ensure that all those records are free from any insect, microbes, fungi and dusts.

3.10.3 Secured visitors/ researchers office

Secured office is located in the main entrance of the building. At the check point the identity is checked and the reason of visiting NRAA. The electronic checking system examining the things carried by the visitors is available in this area. In this area a small exhibition showing the public the NRAA activity and its publications is available. Reading room is located in the second floor of the building; the capacity of this room is 60 researchers at the same time. This room is equipped with the modern equipment, which help researchers to get the information they need.

3.10.4 Emergency exit

It is important, both for the NRAA staff and for the visitors, that NRAA has an emergency plan linked with other authorities, such as the Civil Defense Department and other security departments in the state. This emergency plan shows the emergency exits in the building and explains the steps to be followed in the case of emergency.

NRAA teaches and trains its staff how to react in the case of emergency.

In the new building a prior approvals from the concerned authorities in the state have been considered when designing the emergency maps. The emergency plan shows:

- The entrances and exits.
- The water resources nearby the building.
- The Chemical stores in the building.
- The electrical complex nearby.
- List of the chemical material in the building.
- The pantries and kitchens in the building.
- The locations of documents repository and the stationary stores.
- The location of the library.

4 Conclusion

NRAA took it upon themselves to organize and manage documents in the State from their creation to archiving, and helping governmental institutions to prepare classifications and retention schedules. NRAA uses since its establishments a modern system of records management of physical or electronic records. NRAA building is one of the magnificent buildings in the Sultanate, considering the design and processing preparation in the appliance of technical equipment, which does not affects

human body and the environment by using the latest equipment in sterilization and restoration. This building which contains the staff offices, halls, technical area, laboratories, library, reading room and other facilities has specific specifications in material and equipment. In NRAA's design all the current and future needs for accommodation of staff and equipment from all technical aspects are considered. It is an amazing building in the region containing halls, workshops and laboratories with a goal to help and complete its achievements and a healthy environments for staff, visitors and records.

References

Ling, Ted (1998). Solid, safe, secure. Building archives repositories in Australia.

Records and Archives Law (2007). Muscat.

Repository specification (2009).

Sterilization system in brief (2015).

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