

Tropenmuseum Amsterdam

This report discusses the testing of RE-ORG worksheets on estimating the fullness of storage areas and on the design or identification of new containers to protect delicate objects at the Tropenmuseum in Amsterdam.

Author

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Worksheets tested

Estimate the fullness of storage areas

Design or identify new containers

Abstract

Two case studies were carried out in the storage areas of the Tropenmuseum in Amsterdam, part of the Royal Tropical Institute (KIT). The first case focused on the testing of the worksheet on estimating the fullness of storage. Prior to testing, a short survey of the storage area was carried out to obtain an overview of its condition. Staff was interviewed to collect the information on management issues. To calculate the fullness of storage, the author adapted RE-ORG to suit her specific needs and developed an alternative approach. RE-ORG suggests beginning by looking at the fullness of individual storage surfaces; the author chooses instead to look at the free space available instead. Storage fullness was then calculated based on these results. Recommendations are made for the rearrangement of storage units, the redistribution of objects and the adding of new shelves. Testing of the worksheets on the design or identification of new containers was carried out in the same museum, specifically on the ceramics collection. The author evaluates storage equipment as a whole and suggests ways to optimize furniture, small equipment, containers, supports and mounts, according to the needs of the collection. Examples of containers and conditioning materials from other storage areas in the Tropenmuseum were taken into consideration.

Disclaimer

Differences in numbering and titles of worksheets:

- 2F4 Design or identify new containers (now: 3.8 Assess the need for new containers, mounts and padding)
- 1F1 Furniture evaluation (now: 2.7 Evaluate the condition and suitability of storage furniture)
- 1F2 Small equipment evaluation (now: 2.9 Evaluate the condition and suitability of small equipment)
- 1F3 Containers, mounts and padding (now: 2.13 Evaluate existing containers, mounts and padding)
- 2F1 Reach decisions on storage furniture, equipment, etc. (now: included in 2.7, 2.9 and 2.13)

Note: The text of this case study is presented as it was submitted by the authors. It has not been edited or modified in any way. Be aware that terminology used is not necessarily consistent with that found in the current version of RE-ORG.



Determining the fullness of the storage area

Tropenmuseum AMSTERDAM, 2010

Maria Perwög

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1. Introduction

The **museum reorganization methodology** is made by the ICCROM (Preventive Conservation of Endangered Museum Collections in Developing Countries).

The methodology is an assistance and guideline for getting an overview of the storage condition and solutions for the reorganization of the storage area.

The museum reorganization methodology is organised in three phases. In these three phases there are four values which play an important role:

- Building
- Collection
- Management
- Furniture and small equipment

In order to get a complete image of these values, I have to finish different tasks. Phase I. contains guidelines to collect all information about the inventory and the condition. The final product of Phase I. is a complete condition report. Phase II. contains tasks for reorganization projects and Phase III. contains tasks for storage reorganization implementations. All phases are structured in abovementioned the four parts. The final products of these phases are structured in the same way as the methodology is:

- Ph.1. Storage Condition Report
- Ph.2. Storage Reorganization Project
- Ph.3. Storage Reorganization Implementation

In this article I have to evaluate the task **Determining the fullness of the storage area (1B4 = 1** means this task is in Phase I., **B** means it is about the building and **4** is the number of the task). I have to find out how practical the methodology is.

I did my research in the storage area of the Tropenmuseum in Amsterdam, which is a part of the *KIT* (Royal Tropical Institute).

Before I started with the task **Determining the fullness of the storage area**, I had to collect information about the storage area and finish two other tasks (1F5, 1F6). For this I made an inventory and a description of the condition, to get an overview of the storage area.

With all this information it is possible to evaluate the fullness of the storage area.

2. Inventory

The inventory of the storage area is described to get an overview of the room and the furniture.

Location and environment:



Figure 1 :Tropenmuseum outdoor, arrow show the storage

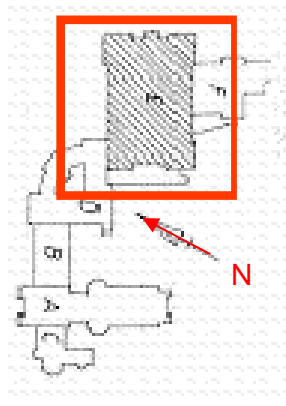


Figure 2: floorplan, museum

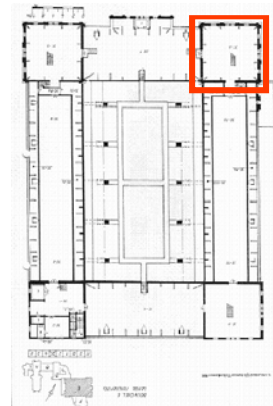


Figure 3: floorplan location storage

The area which I am studying is in the Tropenmuseum in Amsterdam.

The storage is located on the third floor between the textile storage, a corridor and the roof room.

Measurements: floor 11,08 x 10,74 m (119m²) and intermediate level mezzanine (90m²)

Environment: 8 windows (secure), protection with curtains but no UV- filter

5 doors (secure)

2 open floors

Exposed pipes, heating pipes

2 exterior walls, a other storage, building service room, roof room

The storage is divided in to two areas: the main floor (diverse storage with requisites and other items) and the mezzanine (ceramic storage). To reach the gallery you have to climb up a steep stair case. The two different areas are called **Ceramic storage** and **Diverse storage**. Not all objects belong to the museum collection some are requisites and therefore have an R or T- number. For these numbers it is not clear already if these objects will be in the final museum collection.



Figure 4: insight diverse storage



Figure 5: insight ceramic storage

The floor plan beneath shows the position of the furniture and environment. There are five doors and eight windows. The doors and the windows have secured locks. In front of the windows are textile curtains, but UV filter protection is missing. Several pipes and cables are going through the room. There is also a water pipe to supply a fire hose. There are a lot of holes, gaps and other open spaces where insects can come in. It is not possible to tell if there are insects at the moment. Because of the buildings age the climate in the storage is highly fluctuating and follows the outdoor environment (doors and windows). (building)

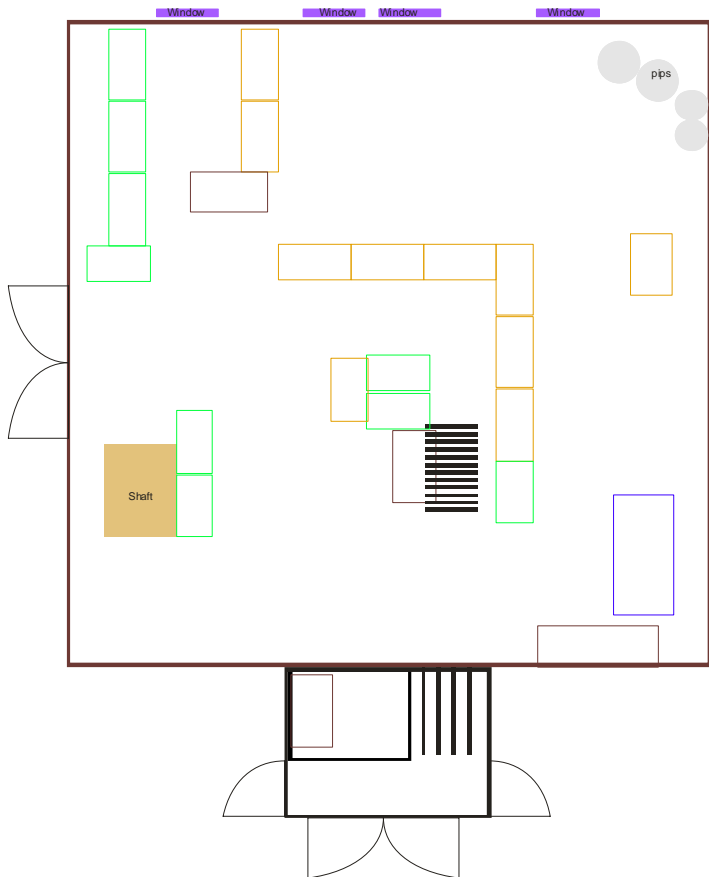


Figure 6: diverse storage, Inventory

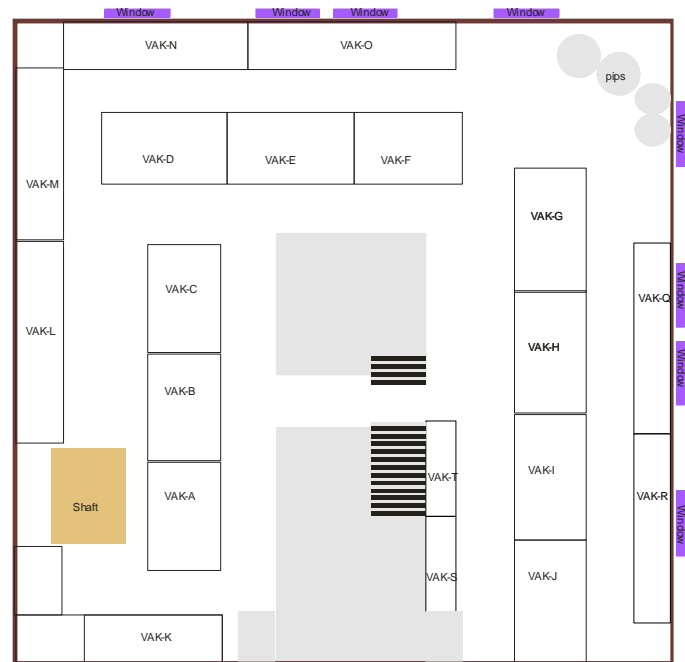
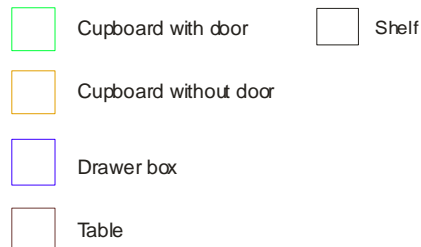


Figure 7: ceramic storage, Inventory

The objects in this storage have an inventory number, barcode and are documented in TMS (the Museum System).

In the diverse storage there are no visible location locks on the outside of the cupboards. Due to this the overview is handicapped. Several objects are in grey containers without any organization. The containers are numbered with bar codes.

At the ceramic storage there is a good visible legend on each shelf and each object has a unique location code. But not every object is on a shelf. Big objects are standing on the floor or in grey containers.

More or less all objects are free of pests. This is because of a general cleaning, packing and freezing campaign in the year 2009 after an insect infestation. The room is still not protected to the highest level from pests and insects entering from outside. (collection)

Sufficient staff is allocated at the storage area. The staff has the overview and manages the storage. (Management)

Furniture and small equipment are already stuffed, because they are not optimal used and there is no adaptation on the dimensions of the objects. Some big objects are standing directly on the floor. (Furniture + small equipment)



Figure 8: diverse storage, grey containers on the floor



Figure 9: diverse storage, object directly on floor



Figure 10: ceramic storage, objects directly on floor

3. Condition

3.1. GENERAL

To get an idea about the condition of the storage areas, there is a small general introduction.

The condition of the two areas is different:

On the main floor where the diverse storage is located, there is no visible structure or organization. The objects are between requisites and other stuff. The inventory number and the barcode are not easily visible on every object. Some objects are arbitrary placed in grey boxes.

Figure 11 shows green cupboards which can be closed and yellow cupboards which are without doors.

This means that several objects are in direct contact with the room environment and there is no protection from dust and dirt. There are also objects which are packed in foil and have therefore a good protection.

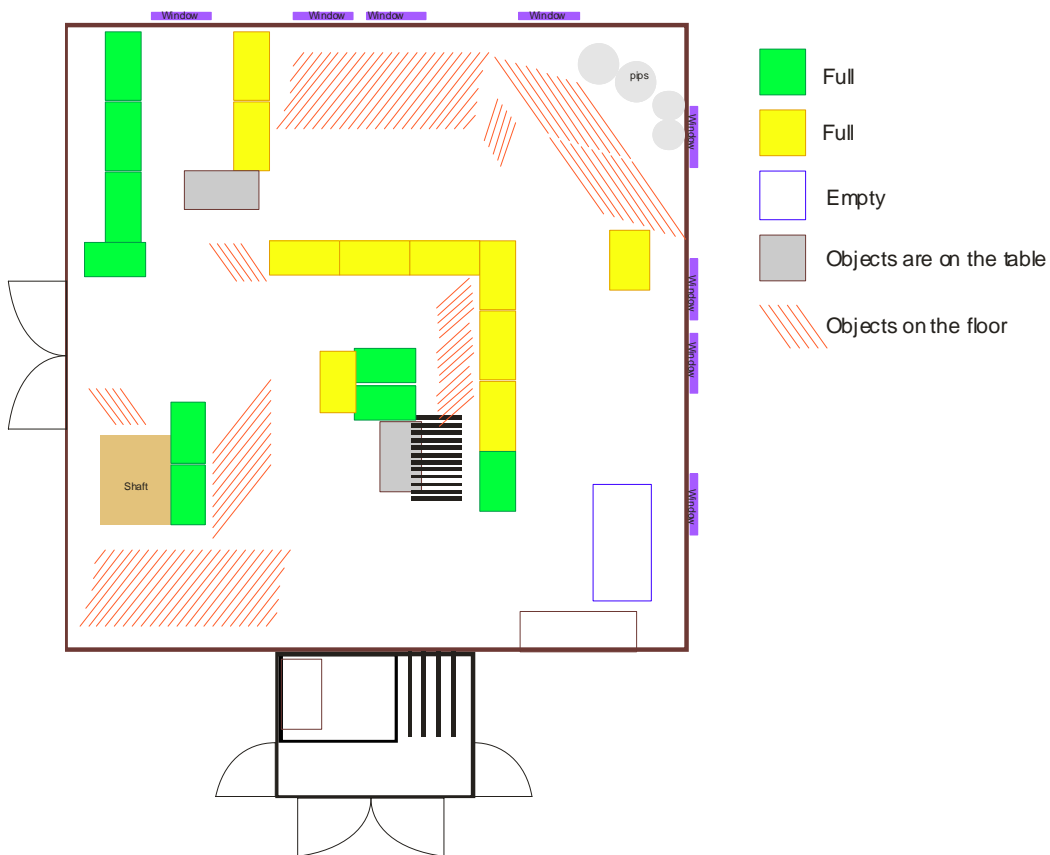


Figure 11: diverse storage this graphic gives an overview of the first impression from the stuffed storage

The floor plan gives a first impression of the fullness of the furniture in this storage. After the evaluation with the museum reorganization methodology you get an idea of the free space in the storage.

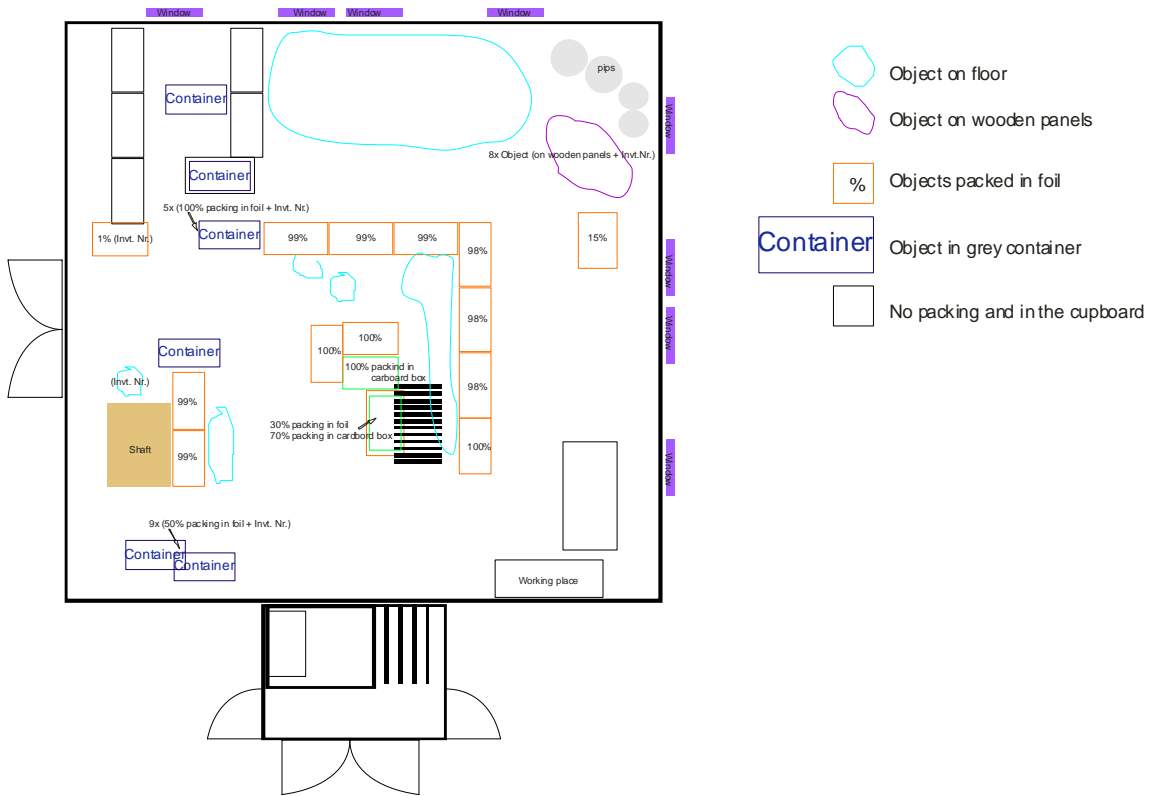


Figure 12: diverse storage, graphic of condition



Figure 13: diverse storage



Figure 14: diverse storage, free space, reshuffling



Figure 15: diverse storage, free space, reshuffling

The ceramic collection is located in the mezzanine and is better organized than the other collection. Objects are stored on shelves or on the floor. The shelves are covered with different materials for example with paper, PE-foil (ibicell) or directly on the wooden shelf. The gallery is organized with shelving and visible legends.

All shelves are open. There is no protection against dust and dirt. Removing the big and heavy objects is quite difficult because there is a steep stairs case. This is a high risk for proper handling.

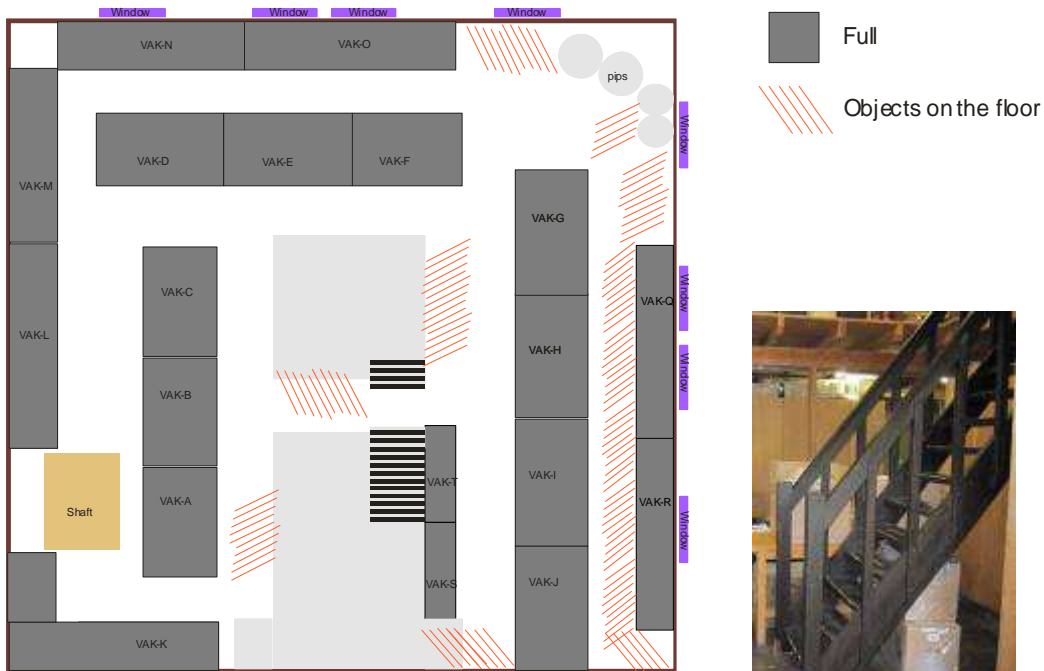


Figure 16: ceramic storage, this graphic gives an overview of the first impression from the stuffed storage



Figure 17: the steep stairs to the ceramic storage



Abb. 18: ceramic storage, space for more shelf boards



Abb. 19: ceramic storage, space for more shelf boards



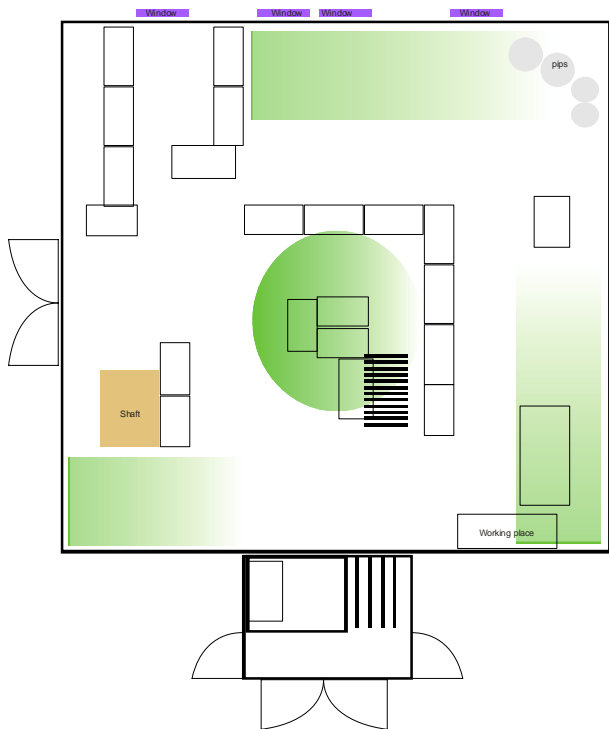
Abb. 20: ceramic storage, empty space

3.2. FULLNESS

The fullness of the storage and the shelf system is evaluated with the guidelines from the museum storage reorganization methodology. For this methodology three steps are necessary for getting an overview of the fullness:

- the evaluation of the occupied floor space
- the average of the occupied furniture space and
- the average of the free left height space in the room and the furniture.

3.2.1. ESTIMATING THE FULLNESS OF THE STORAGE AREA (1F6)



Free space for shelves and cupboards
 Figure 21: diverse storage, free floor space

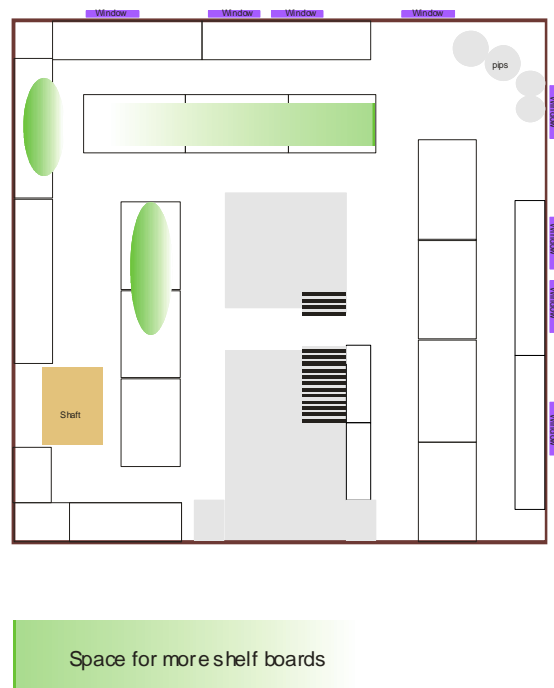


Figure 22: ceramic storage, free space

For the estimating of the **fullness of the storage areas** three steps are necessary:

1. For every storage area calculate the total floor space and occupied space by storage units
2. Then, divide this amount the total floor space of the room
3. Express it as a decimal

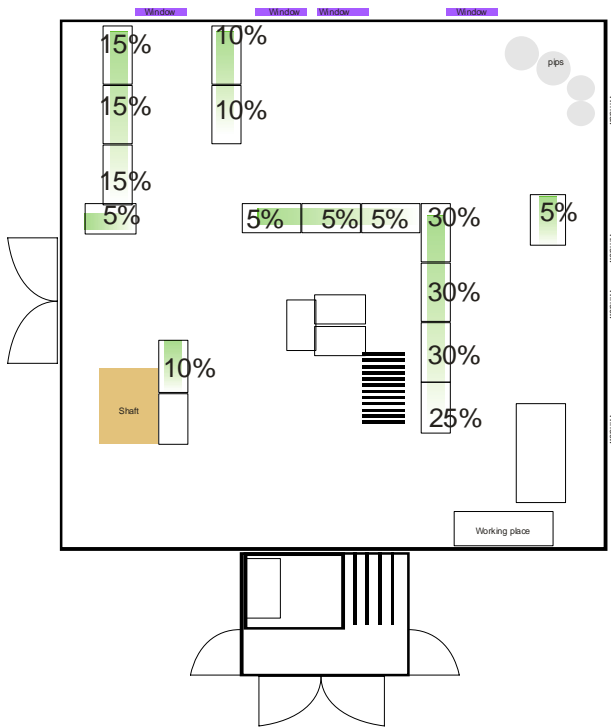
Floor space occupation:

Diverse storage floor 119m ² -10% (because there are architectural barriers) 107m ²	Shelves, cupboards 13m ² (x6,4 shelf floors) 83,2m ²	Level of floor space is occupation is 8%
Ceramic storage floor 90m ²	Shelves 40,5m ² floor space (x2,7 shelf floors) = 109,35m ²	Level of floor space is occupation is 2%

3.2.2. ESTIMATING THE FULLNESS OF THE UNITS (1F5)

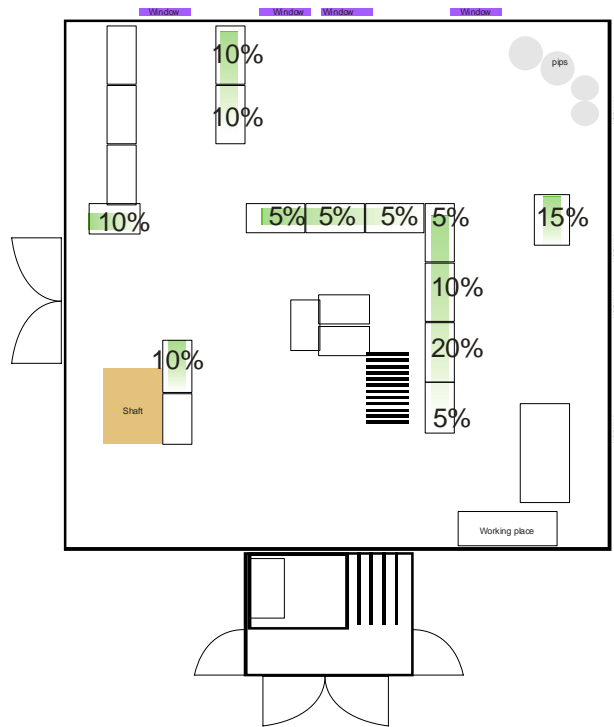
For **estimating the fullness of the units and the height** (step 2) I didn't use a methodology. This is because the methodology gives no guidelines how to get to this information. There are more ways to get the average of the occupation of the height and the shelves.

So I walked through the storage and assessed how much free space is left in each cupboard. After this I made the following graphic and the table.



Free space in cupboards

Figure 23: diverse storage, free space in the furniture



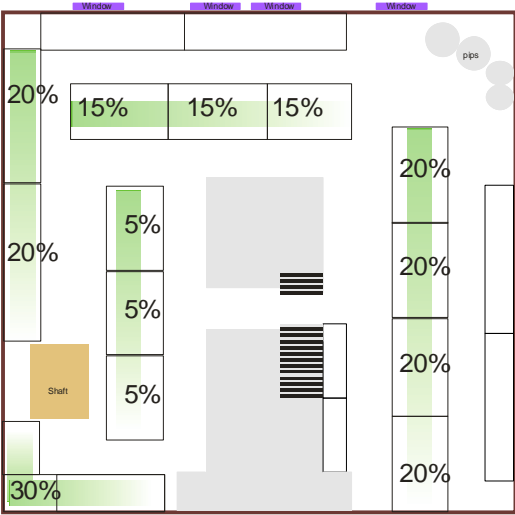
Free space in the height

Figure 24: diverse storage, free space in the height

Fullness average of the unites and height in the diverse storage:

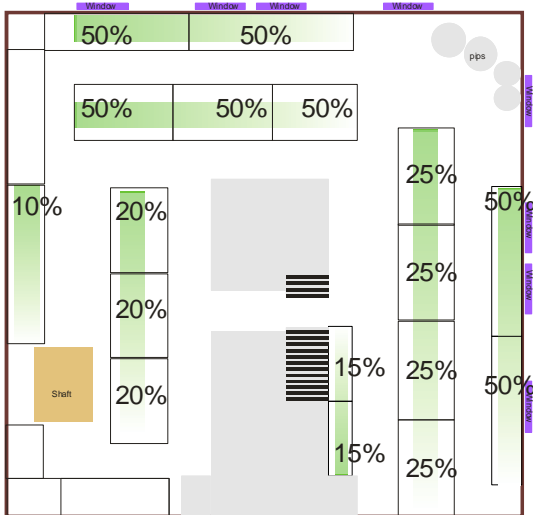
Shelves/ furniture	Occupied space	Shelves/ furniture	Occupied space
5 x	95% = 475	5 x	95% = 475
3 x	90% = 270	4 x	90% = 360
3 x	85% = 255	1 x	85% = 85
1 x	75% = 75	1 x	80% = 80
3 x	70% = 210	11	1000
15	1285		
	86%		91%

The average fullness of the shelves and cupboards in the diverse storage is: 86%
 The average height of using in the cupboards is: 91%



Free space in cupboards

Figure 25: ceramic storage, free space in the furniture



Free space in the height

Figure 26: ceramic storage, free space in the height

Fullness average of the unites and height in the ceramic storage:

Shelves/ furniture	Occupied space	Shelves/ furniture	Occupied space
3 x	95% = 285	1 x	95% = 475
3 x	85% = 225	2 x	90% = 360
6 x	80% = 480	3 x	85% = 85
1 x	70% = 70	4 x	80% = 80
13	1090	7 x	50% = 350
		17	1150
84%		68%	

The average fullness of the shelves in the ceramic storage is: 84%.
 The average of the height of using in the shelves is: 68%

3.2.3. DETERMINING THE FULLNESS OF THE STORAGE AREA (1B4)

The calculated fullness of the storage is evaluated with the dates of the before showed pages.

Diverse storage:

occupation	height	floor occupation
0,86	0,91	0,8

63%

Ceramic storage:

occupation	height	floor occupation
0,84	0,68	0,2

12%

The calculation methodology has to be adapted to the local situation. I think it is necessary to note down that the calculation relates to free rectangular rooms. In rooms with obstacles it is not possible to get an useful calculated percentage. The height and the free space in the area are not the possible occupied space.

The classification is a main reason for a useful calculation. This calculation makes only sense if you include the classification idea of the storage area. How and which guidelines are important to build object groups. The classification is a main part for the reorganization of the objects in order to get an optimal space use.

The calculation of an exact number is not necessary in order to get an idea how much free space is left in the storage. You get a good idea of the occupied space and the free space if you evaluate the three steps.

For an argumentation for improvements the evaluation is enough. You get enough facts with them you can handle.

A running through example is very useful to get an idea how the methodology work.

4. Reshuffling/ Redeployment

There are several opportunities to get more useful storage space in the storage. The two main options are to rearrange the shelves and cupboards with some more objects and a new organization of the units.

- reorganization and more shelves
- not all shelves are optimally used (depends on the classification)

4.1. REARRANGE OF CUPBOARDS AND SHELVES

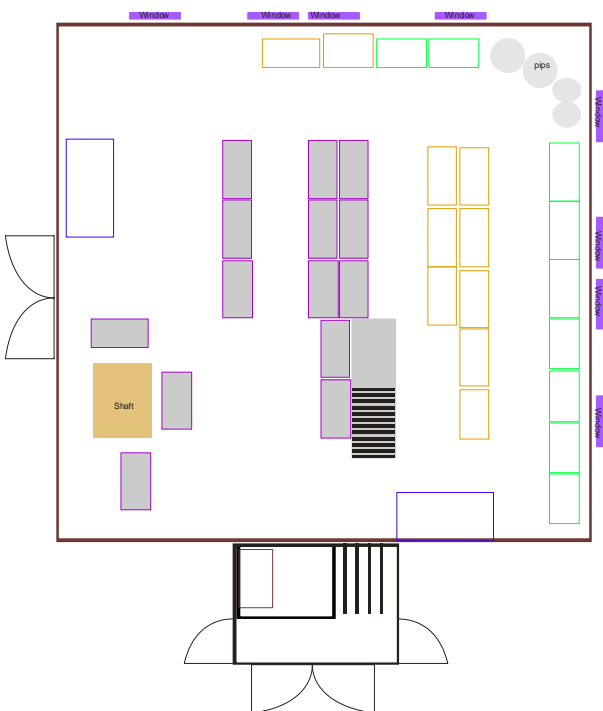


Figure 27: idea 1, possible new organisation

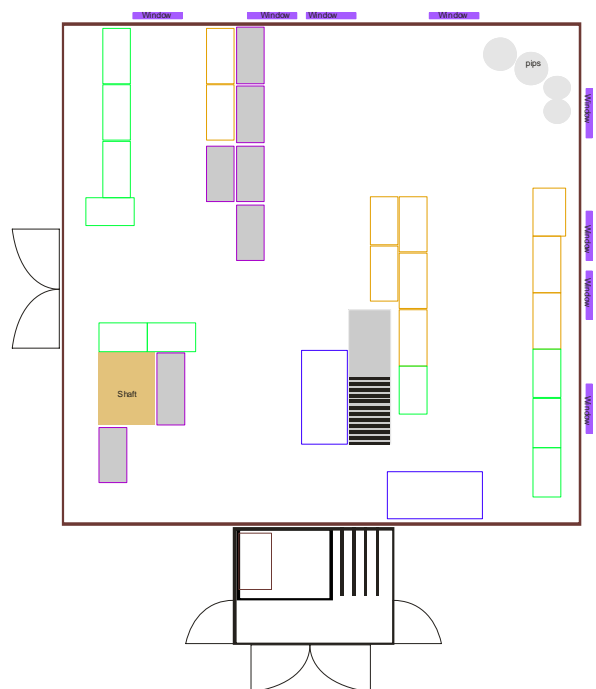
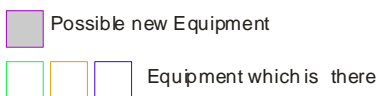


Figure 28: idea 2, possible new organization



Through a new organization of the existing equipment we will get space for more shelves or cupboards. In that way we get space for objects which are now in containers or on the floor. After this it is also possible/necessary to put a visible legend on each shelf and cupboard. By doing so we get a good overview and the objects are easier to be found.

Big objects which are not fitting on a shelf should be put on a wooden pallet. In this way the objects are a bit safer from the environment and can be moved easier.

The floor in the ceramic storage is fully occupied with shelves. There is no space for more. But there is space in the height and in the left corner.

4.2. REARRANGE IN THE CUPBOARDS AND SHELVES

Through a new organization of objects on the shelves and cupboards we will win a lot of space.

The cupboards and the shelf system are not optimally used. There is space between the shelf boards for more. There is enough space for expansion. So the adaption of the system would be useful.

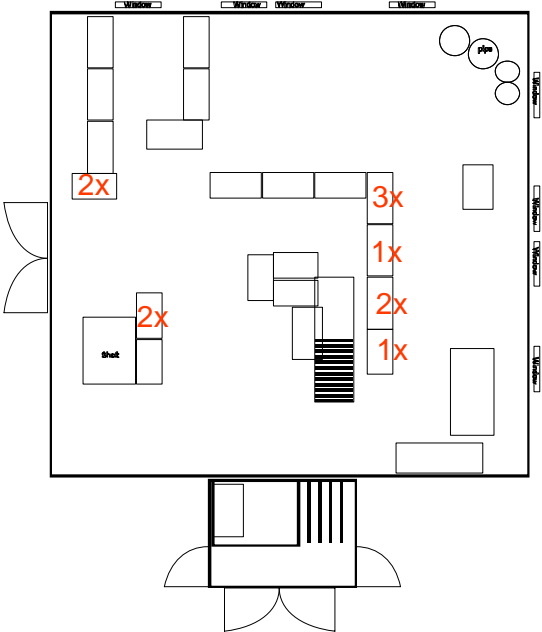


Figure 29: diverse storage

...X: more shelf floors

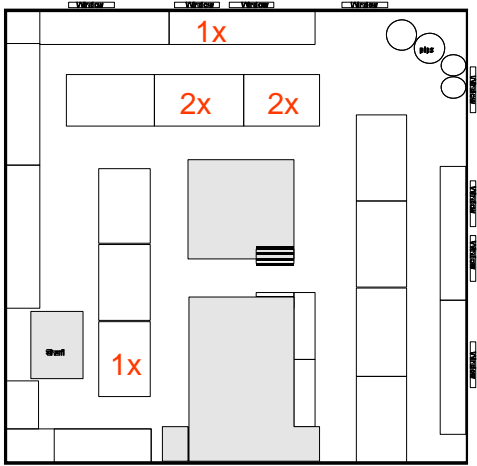


Figure 30: ceramic storage

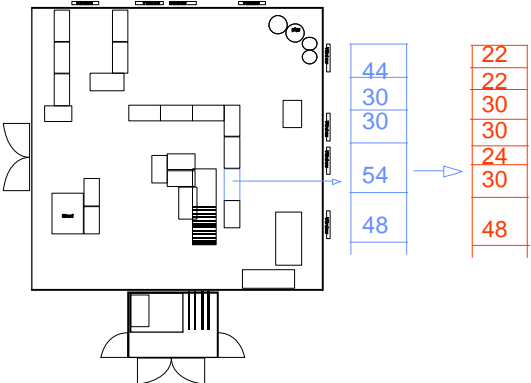


Figure 31: graphic which show the add on the furniture with more boards

Example: The space between the shelf floors is big enough for two more shelves.

The drawing shows the front view of the cupboards, condition (blue) and possible solution (red).

In the ceramic storage there are some objects on the floor and in the corridor. Due to there is less space in the corridor and the objects are not safe. It is necessary to find a new place for these objects.

In the located shelf system and the organization there is no space for them. But it is easy to handle to get more space there. With reshuffling a few objects and more shelf floors it is possible to get a lot of space and free passages.

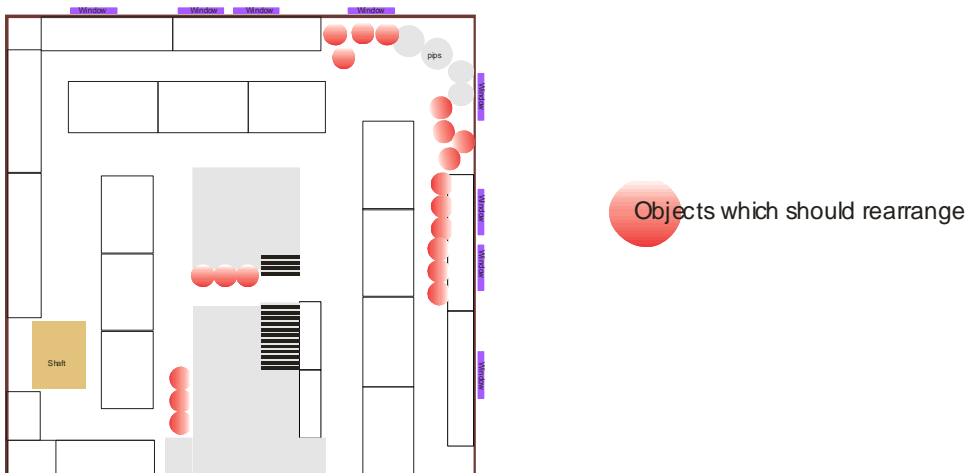


Figure 32: ceramic storage

5. Improvements

Diverse storage:

Three easy steps are very useful to get an optimal space occupation in the storage.

There have to be more shelves for objects which are now on the floor or in temporary containers.

Wooden pallets for big objects to protect them from the environment. A visible and easy to handle legend is also sensible (also when the cupboard is closed). A protection for the open cupboards is recommendable. The objects are safer from dust, light, etc. ...

- rearranging the objects
- more shelves
- wooden pallets

Ceramic storage:

Some more shelf boards and maybe curtains which protect the objects from dust are recommendable.

- dust protection
- wooden pallets

How much material and what material?

Diverse storage

Wooden boards:




 (1,20 x 60 m)	9x
 (1,04 x 0,60 m)	5x

New shelves: ?

Textile curtains ?

Ceramic storage

Wooden boards:

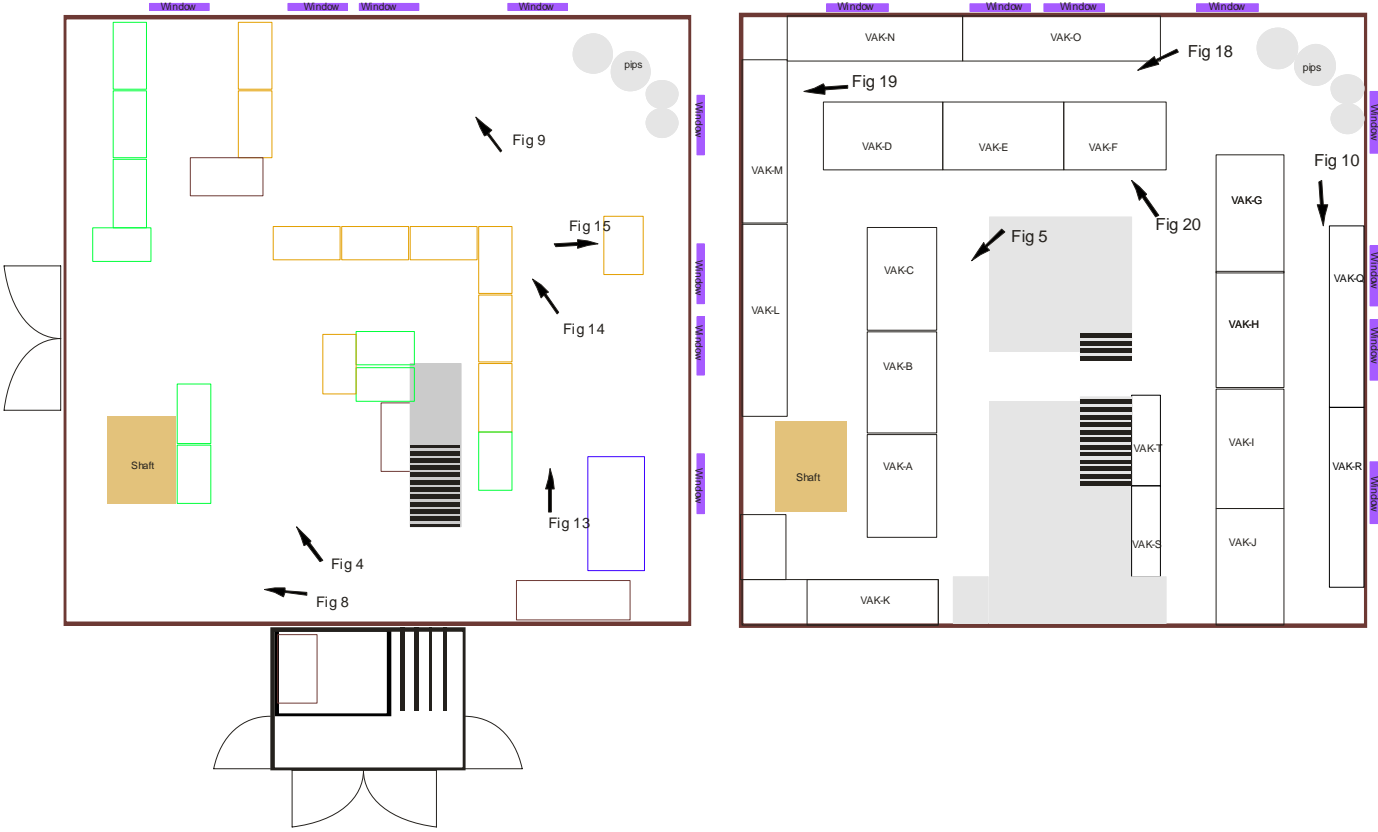
 (1,76 x 1,18m)	2x
 (3,40 x 0,77 m)	1x
 (1,73 x 1,18m)	1x

Textile curtains?

How much money?

How much time it need?

Attachment:



These two floor plans show the location of the photos in the article.



Design or identify new containers

Tropenmuseum AMSTERDAM

Maria Perwög

Contents

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1. Introduction

This is the second chapter of my museum reorganization methodology tasks:

In this article I made an evaluation of the storage equipment and I created an easy solution to optimize the situation in the storage. For this project I used the museum reorganization methodology. The **museum reorganization methodology** is made by the ICCROM (Preventive Conservation of Endangered Museum Collections in Developing Countries).

The methodology is an assistance and guideline for getting an overview of the storage condition and solutions for the reorganization of the storage area.

In this article I have evaluated and adapted the furniture, the small equipment and the containers, supports and mounts. This adaptation I made in the ceramic and diverse storage. For the following ideas we have to know the significance of these storage areas.

Both storage areas are located in an old building close to the attic. The storage is not on the highest storage level standards. Because of the lack of space in the museum this room is used as storage.

Most objects in the diverse storage are requisites and non-collection objects. This is contrary to the ceramic storage, where the objects are collection objects, but they are not part of the main collection of the museum. The objects that are stored here are not so sensitive to a fluctuating environment.

My mission for this article is to **Design and identify new containers (2F4)**. Before I can start with this task I have to finish task **Reach decisions on storage furniture, equipment, ect. (2F1)** and task **Estimate the fullness of the units & height usage (1F5)**. The task **Estimate the fullness of the units & height usage (1F5)** I already made for the first project **Determining the fullness of the storage area (1B4)** in the diverse and ceramic storage of the Amsterdam Tropenmuseum.

2. Task: Design and identify new containers (2F4) – HOW?

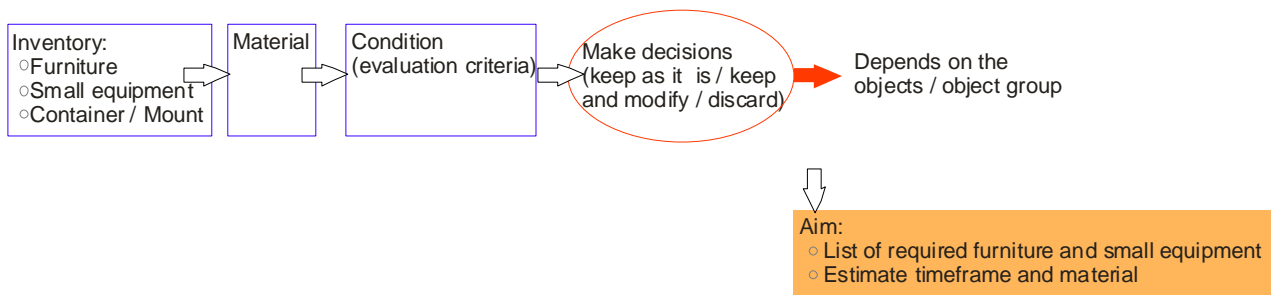
Before you can execute this task you need information from other tasks:

- Reach decisions on storage furniture, equipment, etc. (2F1),
- Estimate the fullness of the units & height usage (1F5)]

The drawing beneath shows the different steps from the other tasks which are necessary before starting task: Design and identify new containers (2F4).

The entire inventory about furniture, small equipment and containers, their materials and the condition are collected in the table on page five and further.

With all this collected information you can make final decisions and therefore find a new solution for objects.



At first I evaluate the situation and make decision of the equipment which we can take as it is and which are modify or discard. With this information I create improvements and find easy solutions for this collection.

This task influences the calculation of the reorganization of the storage. After knowing the size and design of the equipment and containers, you get the idea of the space you need. (It is interesting for the task *Determining the fullness of the storage area (1B4)*, which I already made.)

3. Estimate the fullness of units and height usage (1F5)

These results are from the project *Determining the fullness of the storage area (1B4)*.

The average fullness of the shelves and cupboards in the diverse storage is 86%
 The average height of space in the cupboards is 91%

The average fullness of the shelves in the ceramic storage is 84%.
 The average of the height of space in the shelves is 68%

4. Evaluation

The following table is a combination of the task *Reach decision on storage furniture, equipment, ect. (2F1)* and the tasks *Furniture evaluation (1F1)*, *Small equipment evaluation (1F2)* and *Containers, Mounts and Padding (1F3)*.

Furniture evaluation (1F1):



Figure 1: Inventory, diverse storage

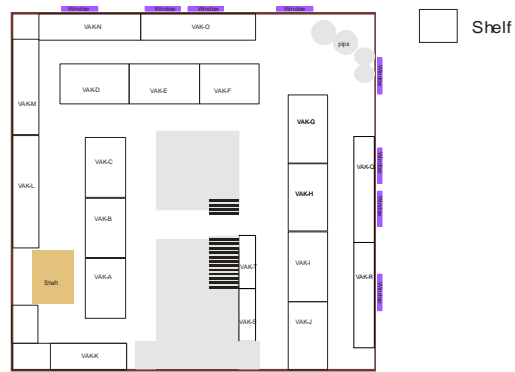


Figure 2: Inventory, ceramic storage




Photo		
	<p>Type Cupboards with doors</p> <p>Material Wood Metal</p> <p>Condition Good</p>	<p>Make decisions Keep as it is</p> <p>How much more? More boards are possible but the amount depends on the classification of objects. If it is classification on the measurement, more boards are possible.</p>

	<p>Type Cupboards without doors</p> <p>Material Wood Metal</p> <p>Condition Good</p>	<p>Make decisions Keep as it is</p> <p>How much more? More shelves are possible but the amount depends on the classification of objects. If it is classification on the measurement more shelves, are possible.</p>
	<p>Type Shelf system</p> <p>Material Wood Metal</p> <p>Condition Good</p>	<p>Make decisions Keep as it is</p> <p>How much more? More shelves are possible but the amount depends on the classification of objects. If it is classification on the measurement, more boards are possible.</p>

In the diverse storage there are cupboard with and without doors. The shelves are not adapted to the object sizes in order to save space for more objects.

In the ceramic storage there is an open shelf system without any protection. Between the shelf boards there is still some space for more boards and objects. But the removing of objects depends on the classification.

Small equipment evaluation (1F2): example of current small equipment

	<p>Type Different sizes of the grey plastic container</p> <ul style="list-style-type: none"> • Grey container PP 60x80x42,5 cm 60x80x30,5 cm 60x80x20,5 cm 60x80x12,5 cm • Transparent container 1,05x0,75x0,33cm • White container 60x40x18,5 cm 	<p>Make decisions Keep as it is</p> <p>How much more? Transparent container- 90 pieces more (instead of the aluminium with the sand – see page 9)</p>
	<p>Material Plastic PP and PMMA</p> <p>Condition Good</p>	
	<p>Type Different types of wooden containers 100x100x30cm 78x78x78cm 45x56x15cm 50x40x12cm</p> <p>Material Wood filling: Polyester</p> <p>Condition Good</p>	<p>Make decisions Keep as it is</p> <p>How much more? Proposal for three more for the other big ceramic objects,</p>

**Type**

Different types and sizes of carton boxes

- Cardboard boxes
50x33x38cm
32x36x15cm
- Black small box
10,5 x9x2cm
8,5x6,5x2cm

Material




Cardboard

Condition

Good - Bad

Make decisions

Select the good and the bad. Keep the good ones as they are.

	<p>Type Small bowl made of aluminium 14x9x0,5cm</p> <p>Material Aluminium</p> <p>Condition This bowls didn't protect the sand. For stones they are okay.</p>	<p>Make decisions Discard the bowls with the sand. The bowls with stones keep as they are.</p>
	<p>Type 3 Alumina box 30x27x27cm</p> <p>Material Aluminium</p>	<p>-</p>
	<p>Type Wooden pallets 100x80x12cm</p> <p>Material Wood Metal</p> <p>Condition Good</p>	<p>Make decisions Keep as it is</p> <p>How much more? 4-5 more, for plants requisites.</p>

The small equipment includes diverse containers in differing size and material. Some of the small bowls are not useful for the object/requisites. For big objects there are wooden pallets and wooden boxes in use.

Containers, Mounts and Padding (1F3):

 <p>Handwritten label text: BOPF SYMPLOLUS FASCICULATA BEKIMMIDEL VOOR HET BEHANDELEN VAN VEZELS VOOR HET VEILIGEN MET SOOM OF MENSCHENWOL</p>	<p>Type Sealing, 65% of the objects in the diverse storage are sealed. (starting 2009?)</p> <p>Material PE foil</p> <p>Condition Good</p>	<p>Make decisions Keep as it is</p>
	<p>Type Cushion and silk paper</p> <p>Material Textile: Filling: polystyrene balls</p> <p>Condition Good (get dirty quickly)</p>	<p>-</p>

	<p>Type Plexiglas ring (for two objects in the ceramic stor- age)</p> <p>Material PMMA</p> <p>Condition Good</p>	<p>Make decisions Keep as it is</p> <p>How much more? Maybe more for big ob- jects without a flat base. (5-6)</p>
	<p>Type Cover and protect the object from dust</p> <p>Material PE- foil</p> <p>Condition Bad</p>	<p>Make decisions remove</p>
	<p>Type Different types of pads, (in the ceramic storage ~80% are with PE- foil/foam)</p> <p>Material PE- foil/foam (ibi- cell)</p> <p>Paper</p> <p>Condition PE- foil/foam good</p>	<p>Make decisions PE- foil/foam – keep as it is, Remove the paper</p> <p>How much more? More PE- foil/foam</p>

In the storage area there is no mounting or padding methodology. Only two objects have an individual designed mount. In the diverse storage 65% of the (organic) objects is sealed in PE- foil.

These objects are protected against dust and pests. Several objects are located on different types of pads (acid free paper, PE-foil, wood). In the ceramic storage there are just three ceramic bottles which are padded on silk paper and cushions. Only two big bowls have a support.

The condition in the two storage areas is different. In the diverse storage a lot of objects are on the floor or in containers and have no permanent stand. In the ceramic storage most objects are in the shelf system.

Condition graphic:

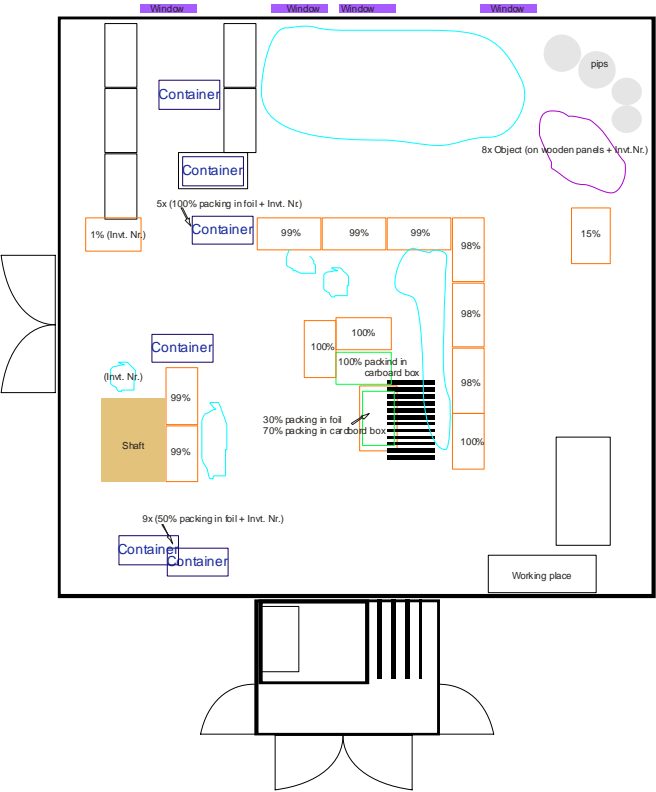







Figure 3: diverse storage, condition

-  Object on floor
-  Object on wooden panels
-  Objects packed in foil
-  Object in grey container
-  No packing and in the cupboard

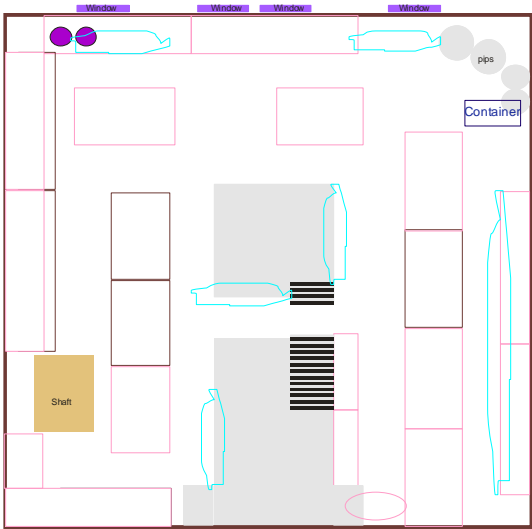







Figure 4: ceramic storage, condition

-  Object on floor
-  Object in container
-  Pad with PE- foil/foam (ibicell)
-  Support
-  No pad or pad with paper

5. Design or identify new containers (2F4)

For designing new containers several criteria are important.

The methodology describes these criteria's:

- Durability
- Stackability
- Stable material
- Optimal space usage
- Uniformity
- Low cost

The final question of this task is:

How much containers are needed and which size should they have?

This will give directly an overview of the timeframe, sources and material.

Here, a general **medium size** cardboard box could be very useful for several objects and object groups. If there is an object which contains more elements, you can fit them all in one box. This is the same with object groups. In addition objects are protected from the local environment.

Diverse storage: Shelves, cupboards 13m^2 - (x 6,4 shelf floors) $83,2\text{m}^2$	Ceramic storage: Shelves $40,5\text{m}^2$ floor space - (x 2,7 shelf floors) = $109,35\text{m}^2$
<ul style="list-style-type: none"> • Covering the cupboard boards with PE- foil (Ibicell) • Small containers instead of the aluminium blades 	<ul style="list-style-type: none"> • Covering material for the wooden shelves: Polyethylene (Ibicell) • Object groups in a common cardboard box with PE- foil (Ibicell) between each piece. • Objects without a flat base would need a individually designed support.

5.1. IDEAS FOR MOUNTS / SUPPORTS AND EXAMPLES FROM OTHER STORAGE AREAS OF THE TROPENMUSEUM AMSTERDAM

The following types of mounts, supports and containers which are used in the Tropenmuseum Amsterdam are:

- Grey containers (some of them with cushions)
- Bee board boxes
- Aluminium frames
- Sealing, packing in a foil
- Supports and mounts in small containers

-Grey containers-

The grey containers are made of PP and are very useful for transport objects. They are also used for temporary storage. The objects are safe from mechanical damage, object groups are together and they are easy to (re)move.



Figure 5: grey container in different size



Figure 6: grey container, temporary stored



Figure 7: grey container, objects are padded with silk paper and a cushion

-Transport and storage containers made of bee board for small and medium size objects-

The bee board containers are individually designed containers for each object. The timeframe for making one of such boxes is on average about four hours. These containers are very useful for transportation, but they can also be used in the storage. They protect the object from the close environment, from mechanical damages, they are easy to (re)move, they are durable, stable and stackable.

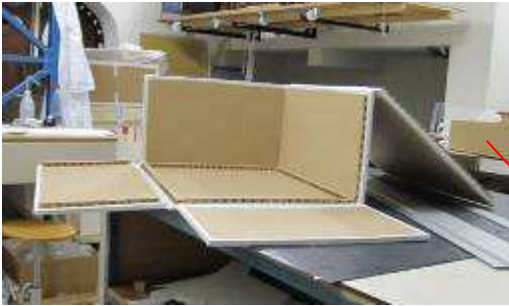


Figure 8: three stable and three flexible sides

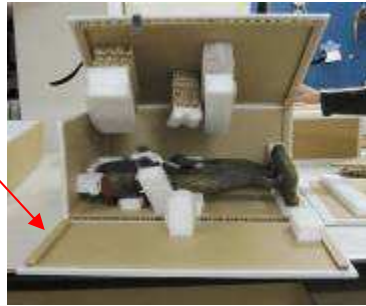


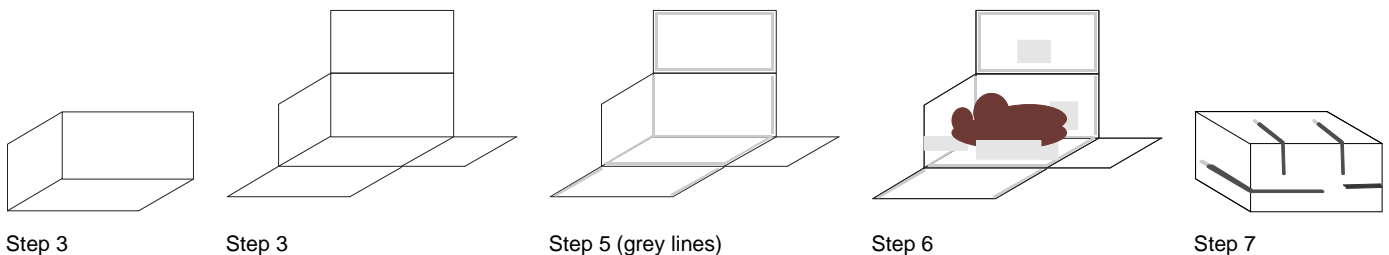
Figure 9: padding with polyethylene foam (Ethafom) and (Ibicell)



Figure 10: closing stripes and photography with legend

Instruction:

- 1) Measure the object and add a bit more (+/- 3 cm) for padding
- 2) Cut the six bee board sides, two sides are 2,5 cm smaller. This is because of the thickness of the board
- 3) Glue three sides together with melted glue. These are the fixed sides, the other three are the flexible ones. The flexible sides are fixed with a water soluble gum paper (figure 8)
- 4) Each open bee board side has to be closed with this water soluble gum paper, it is a protection from dust and animals (figure 8)
- 5) Cut 2 cm thick stripes of bee board for closing the edges and to give the container more stability (see red arrow in figure 9)
- 6) The padding of the object is designed from polyethylene foam (*Ethafoam*) protected with a layer of polyethylene foam (*Ibicell*) to make a soft surface (figure 9)
- 7) For opening and closing use fasteners (*Velcro*), (figure 10)
- 8) Write down the object number and put a photo of the object on the box. (figure 10)



Material: bee board, touch fasteners (*Velcro*), melt adhesive, polyethylene foam (*Ethafoam*, *Ibicell*), water soluble gum paper

-Big and / or fragile Objects - Aluminium frame-

This kind of container is very useful for big, fragile objects with a support inside. The aluminium frames are individually designed for each object. There are different kinds of such containers. There are some with dust protection and some without. These containers are very useful for transportation and also can be used in the storage. They protect the object from the close environment and from mechanical damages, they are easy to (re)move, they are durable and stable.



Figure 11: aluminium frame, without dust protection



Figure 12: aluminium frame, with dust protection



Figure 13: open dust protection



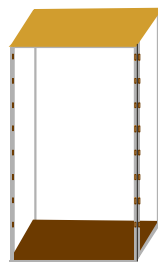
Figure 14: scrolled dust protection

Instruction:

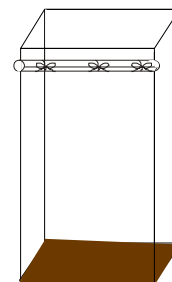
- Measuring the object
- Prepare aluminium frame
- Prepare floor and bottom out of bee board and wood, fixing with tie wraps
- Fine fibres, high density polyethylene (*Tyvek*) protection stitching with touch fasteners and cotton bands
- Glue the touch fasteners on the aluminium frame



step 1



step 2



step 3

Material: bee board, aluminium frame, Fine fibres, high density polyethylene (*Tyvek*), wood, cotton stripes, tye rips, touch fasteners, melted adhesive, cotton band,

-Sealing in PE- foil-

Organic objects and objects made of silver are sealed. In this way, silver objects are protected from sulphur in order to slow down the tarnishing process and organic objects are safe from insects and dust. The padding in the sealed foil is only polyethylene foam (*Ibicell*) or polyethylene foam (*Kubicell*) without a glue or an other material, so there is no chemical reaction with the object.



Figure 15: sealing in PE-foil



Figure 16: sealing with kubicell padding



Figure 17: detail of figure16

-Supports and mounts, small containers-

The individually designed supports for small objects protect them from mechanical damage, they are easy to remove, durable and stable. The handling of the objects is easier.



Figure 18: support 1



Figure support 2



19: Figure 20: PMMA- box, kubicell padding

Instruction:

- Measuring the object
- Prepare floated polyethylene board (*Vikuprop*) with (*Ibicell*) covering
- Prepare the individually designed shape in polyethylene foam (*Kubicell*), so that the object is fixed in it
- Support the label

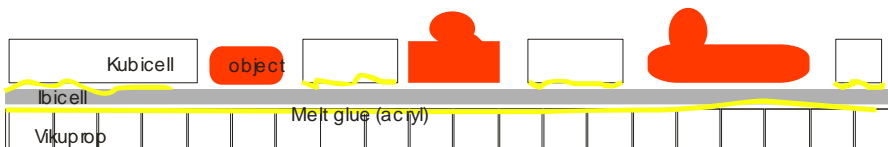


Figure 21: cross- section of a mount

Material: floated polyethylene board (vikuprop), polyethylene foam (Ethafom, ibicell, kubicell), melted adhesive, PMMA- box, cotton threads, PE- foil

5.2. OTHER POSSIBLE SOLUTIONS FOR THE DIVERSE AND THE CERAMIC STORAGE

For the ceramic storage and the diverse storage also other solutions would be interesting. In this context it is very important to find general solutions for object groups and objects consisting of more parts.

All boxes have to be identified clearly, easy visible and simple.

Different types of solutions are:

- Object groups in one box
- Objects made of more parts in one box
- Big, heavy objects – stabile transportable supports for easier moving

Diverse storage:

Improvements, for the diverse storage which I propose are:

- Dust protection
- Space between the objects - protection of mechanical damage

Improvements, for the diverse storage which I hold necessary are:

- Moving the sand (requisite) in to closed boxes,
- Store big objects which are now on the floor (plants and dolls requisites) on wooden pallets,

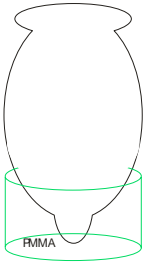
Ceramic storage:

Improvements, for the ceramic objects which I propose are:

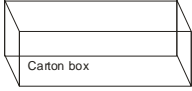
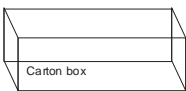
- Dust protection,
- Unglazed objects - handling only with gloves,
- A good standing base,
- Space between the objects - protection of mechanical damage,
- General medium sized box, padding with diverse storage materials - for object groups and objects consisting of more parts,

Improvements, for the ceramic storage which I hold necessary are:

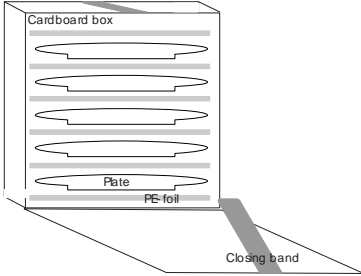
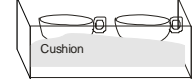
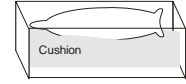
- Big or medium sized objects which are now on the floor - in individually designed boxes out of wooden or cardboard,
- Ceramic objects without a flat base need an individually designed mount,



An easy solution for objects without a flat base is a ring out of PMMA.

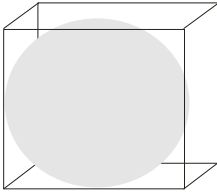


Cardboard box with cushions padding objects.



Cardboard box with more layers for dishes. This carton box is a sample of how to put an object group together in one box.

Cardboard box with polyethylene foam layers (Ibicell and Kubicell)



Wooden boxes are very useful for round objects on the floor. The handling is easy and the object is protected from mechanical damage.

box out of wooden



Put the sand in boxes that can be closed.

Material: Tyvek PE, Ibicell PE, Kubicell PE, Ethafoam PE, Polyester (Melinex), Melt glue (acrylic), Vikuprop PP, Wood,

6. Conclusion:

After having worked with this methodology it is my opinion that it gives a good overview of the equipment and its condition. As a result of this you get a better insight in what adaptations to the equipment are advisable.

In addition this methodology accompanies you during your work and gives a good structure. So it minimizes the possibility of forgetting important points.