



# Long term storage at The Royal Library

National Library and  
Copenhagen University Library

# The Black Diamond



# The Black Diamond





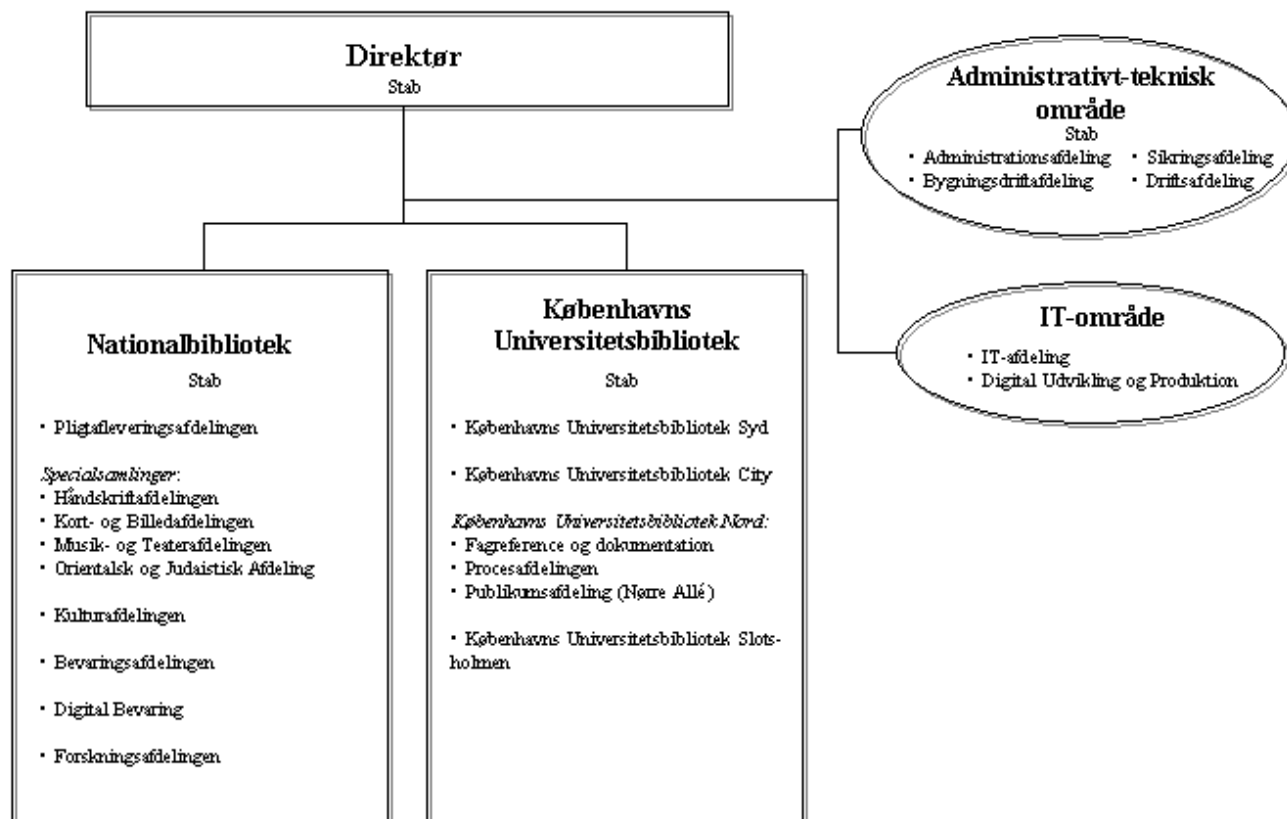
# Storage facilities



Holm  
The Black Diamond  
Njalsgade 112  
Nørre Alle  
Lergravsvej 59  
Vestindisk Pakhus  
St. Dyrehave

Det Kongelige Bibliotek.  
Nationalbibliotek og Københavns Universitetsbibliotek.

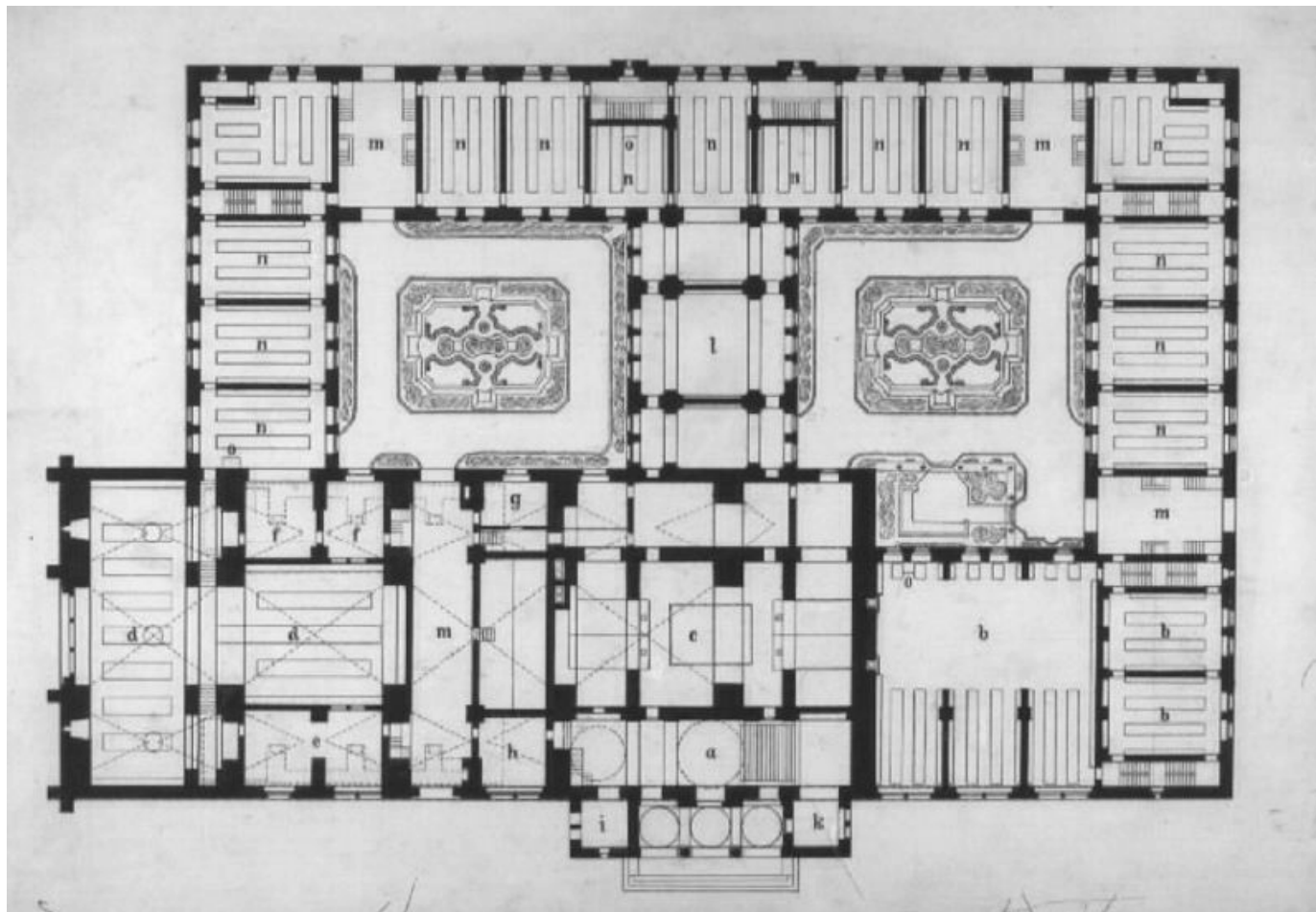
Organisationsdiagram gældende fra 01.03.2007



# Holm



# Holm





# Holm, Danske sal





# Holm



# Boxing



# Nørre Allé



Foto: Karsten Bundgaard



# Lergravsvej





# St. Dyrehave - nitratbunker



# Njalsgade 112, part 1

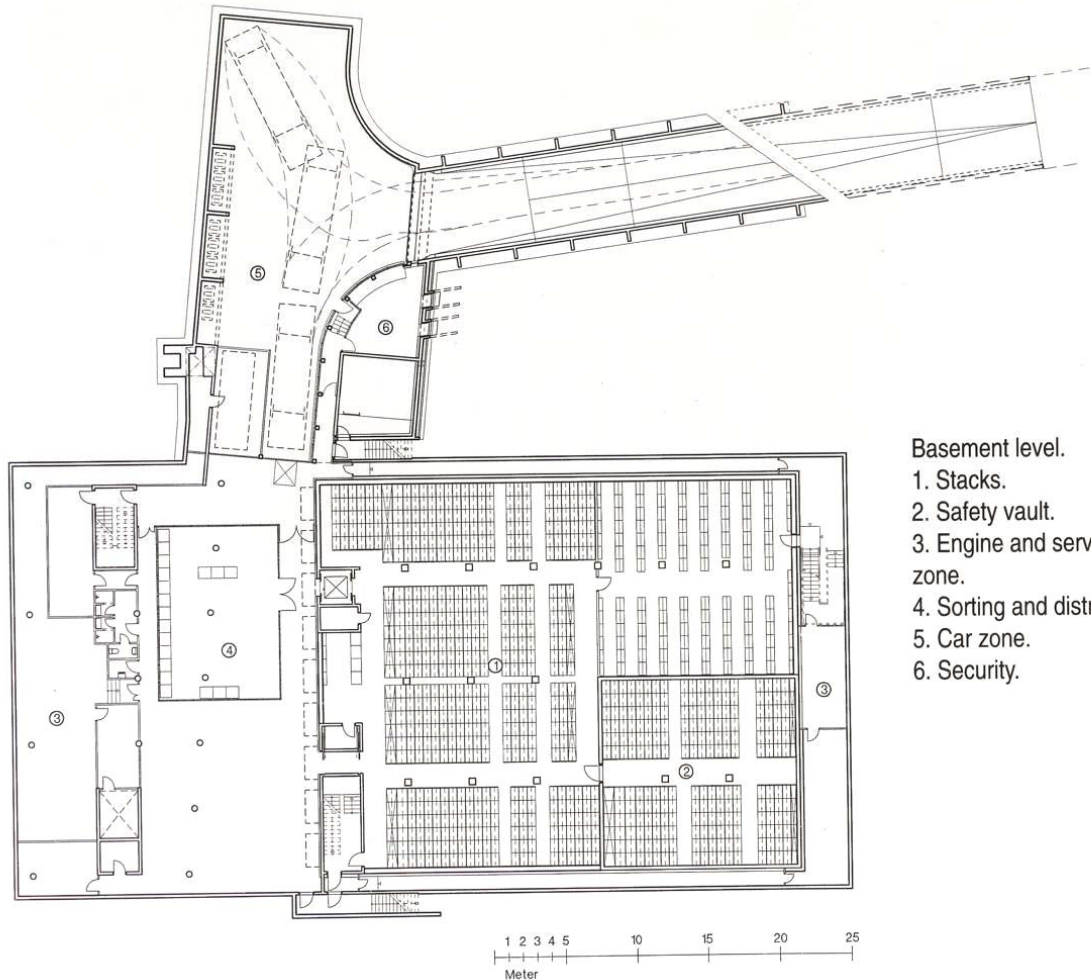




# Njalsgade 112



# Njalsgade 112





# Second Floor



# Njalsgade 112



# Njalsgade 112, part 2



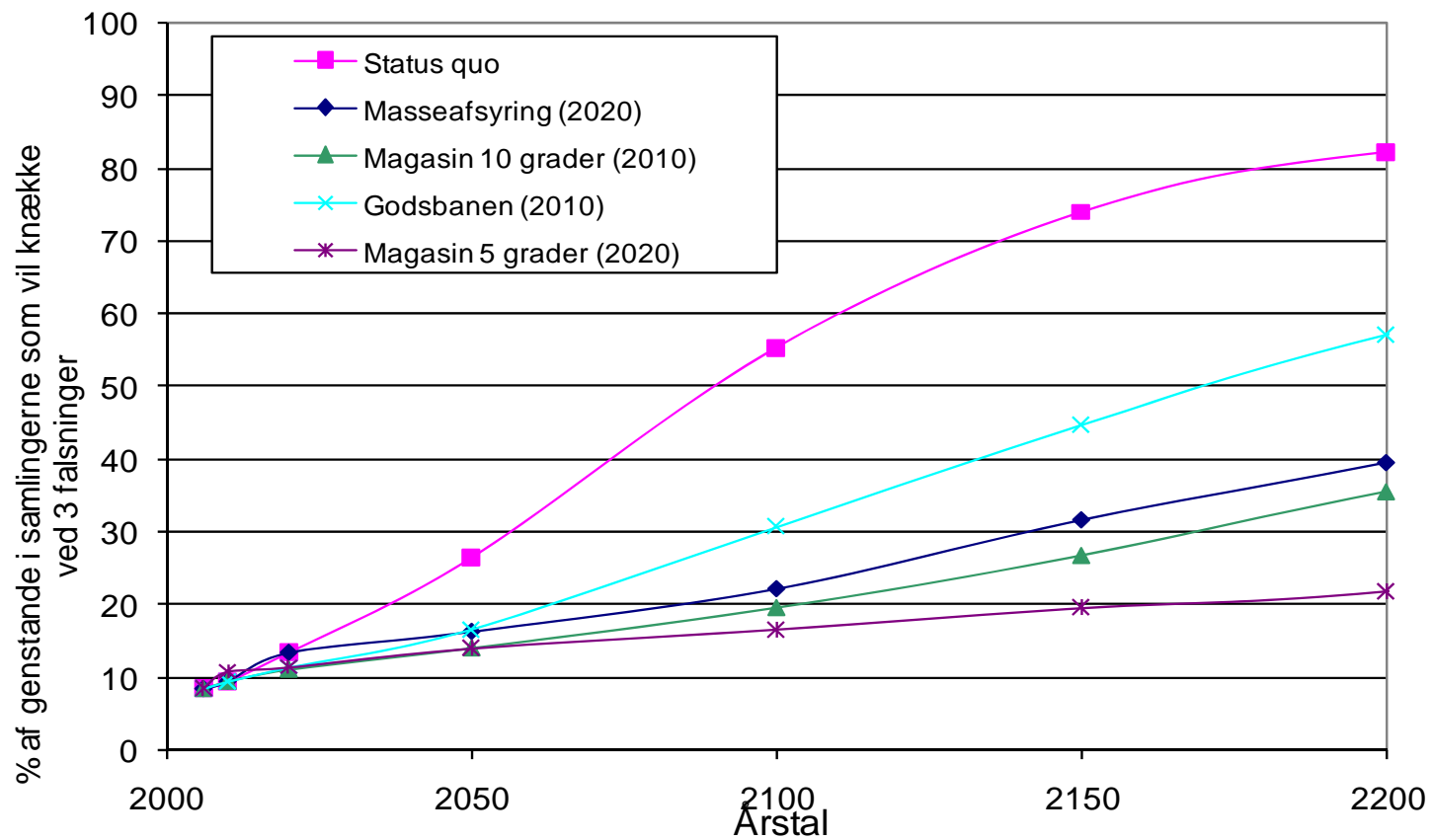
# Storage plan for collections, climate and condition



		<i>hkm</i> 1.1. 05	<i>nuv.</i> <i>magasin</i>	<i>Tempe-</i> <i>ratur</i>	<i>Relativ</i> <i>fugtig-</i> <i>hed</i>	<i>Materiale-</i> <i>type</i>	<b>Bevaringstilstand</b>			
							<i>D</i> <i>Svært</i> <i>skadet</i> %	<i>C</i> <i>Beh.</i> <i>kræv.</i> %	<i>B</i> <i>Sta-</i> <i>bil</i> %	<i>A</i> <i>Form-</i> <i>egnet</i> %
<b>ENB VNB samlinger i lukkede magasiner</b>	<i>Klassifi-</i> <i>cering</i>									
<b>ENB/VNB samlinger i alt</b>										
DA 1.-2. Samling (HDA)	ENB/VNB	4,6	LGV	16-24°C	40-60%	Bogl materiale	12,2	5	20,3	
-	ENB/VNB	3,3	Holm	16-24°C	40-60%	Bogl materiale				
DA 3. Samling (HDA)	ENB/VNB	11,1	LGV	16-24°C	40-60%	Bogl materiale	0	0	0	
-	ENB/VNB	0,2	Holm	16-24°C	40-60%	Bogl materiale				
UA ÆS (HDA)	ENB/VNB	21,8	LGV	16-24°C	40-60%	Bogl materiale	33,9	17	27	
-	ENB/VNB	0,8	Holm	16-24°C	40-60%	Bogl materiale				
UB1 Gl. Samling	ENB/VNB	10,8	N112	18°C	50%	Bogl materiale	33,9	17	27	62,5
Småtrykssamlingen (PLG)	ENB/VNB	5,5	Holm	16-24°C	40-60%	Bogl materiale	12,2	5	20,3	
Danske aviser	VNB	7,7	LGV	16-24°C	40-60%	Bogl materiale	0	100	0	100
-	VNB	10,0	VIP	ikke målt	ikke målt	Bogl materiale				
HA /BS	ENB/VNB	4,9	Holm	16-24°C	40-60%	Bogl materiale	27,3	8,6	26,3	22,1
-	ENB/VNB	0,4	Diamanten	22-28°	15-60%	Bogl materiale				
-	ENB/VNB	0,1	N112 etape 1	18°C	50%	Bogl materiale				22,1
-	ENB/VNB	0,9	Recall, contain	fraflyttes		Bogl materiale				62,5



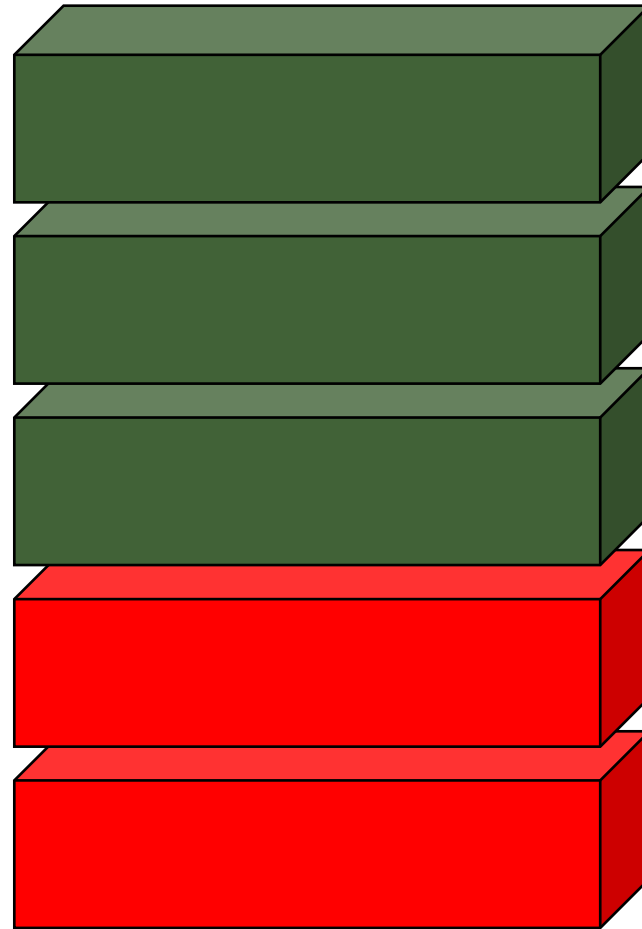
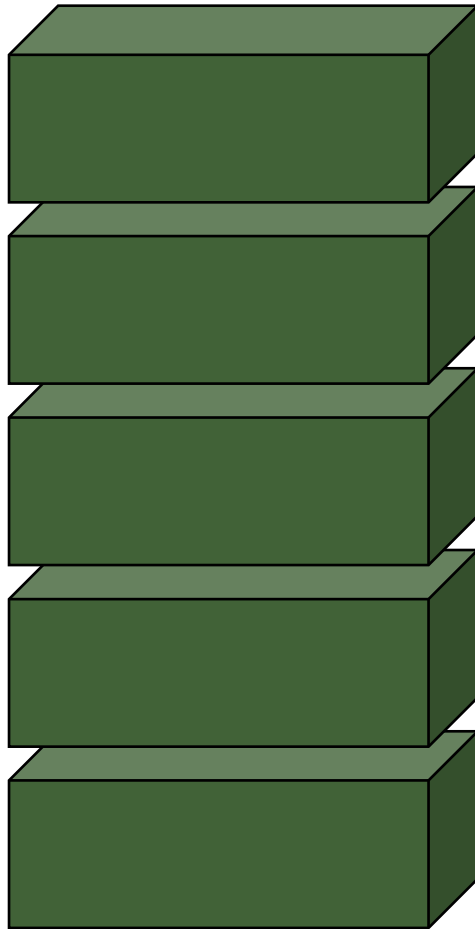
Climate recommendations (30-50% RH)			Temperature zones. Set points in bracket			
			Varm (<18°C)	Cool (12°C)	Cold (4°C)	Frost (<0°C)
BOOKS/doC.	Rag paper		OK	GOOD	GOOD	OPTIMUM
	Acidic paper		NO	GOOD	GOOD	OPTIMUM
	Parchment		OK	GOOD	GOOD	NEO
	Leather		OK	GOOD	GOOD	NO
	Bark, palme leaves		OK	GOOD	GOOD	NO
Globes	Metal		OK	GOOD	GOOD	NO
	Tree		OK	GOOD	GOOD	NO
Fotographs	Glass plates		OK	GOOD	GOOD	NO
	Nitrate film		NO	NO	GOOD	OPTIMUM
	Acetate film/microfilm	b/w	NO	NO	GOOD	OPTIMUM
		Colour	NO	NO	GOOD	OPTIMAUM
	Polyesterfilm/mikrofilm	b/w	OK	GOOD	GOOD	OPTIMUM
		Colour	NO	NO	GOOD	OPTIMUM
	Positiver	Unica, POP	OK	GOOD	GOOD	NO
		b/w	OK	GOOD	GOOD	OPTIMUM
		Colour, chrom.	NO	NO	GOOD	OPTIMAUM
		ink jet	OK	OK	GOOD	OPTIMUM
AV materials	Shellac		OK	GOOD	OK	NO
	Magnetic tapes	Acetate	NO	OK	GOOD	NO
		Polyester	NO	GOOD	OK	NO



# KBA – Phase 2

West

East



8-16

2

**8 Book + 2 photographic Storages**



## Photographic material

- **Room temperature is  $2\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$**
- **Relative humidity is  $30\text{ \% RH} \pm 5\text{ \% RH}$**





## Book Storage

- **Room temperature is  $8\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$  gliding over the year to  $16\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$**
- **Relative humidity is  $40\text{ \% RH} \pm 5\text{ \% RH}$  gliding over the year to  $45\text{ \% RH} \pm 5\text{ \% RH}$**



## Indoor Air Quality in Storages

Design for "limited values"

- Acetic acid  $50 \mu\text{g}/\text{m}^3$
- Formaldehyde  $5 \mu\text{g}/\text{m}^3$
- Sulphur dioxide  $0,2 \mu\text{g}/\text{m}^3$
- Ozon  $1 \mu\text{g}/\text{m}^3$
- Nitrogen oxide  $2 \mu\text{g}/\text{m}^3$



## Detection and preventing fire

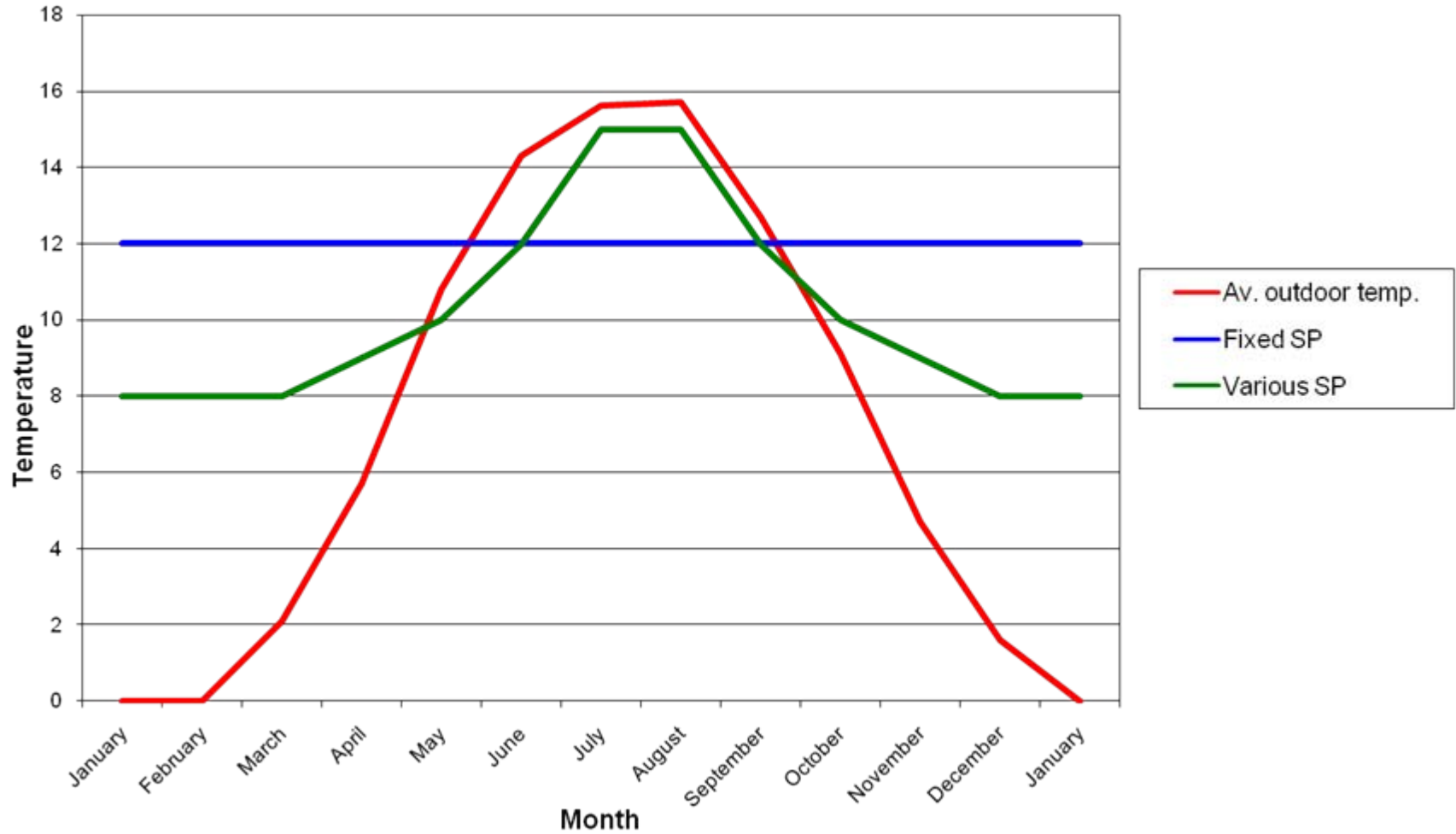
- Nitrogen and water mist system

# Preservation Index

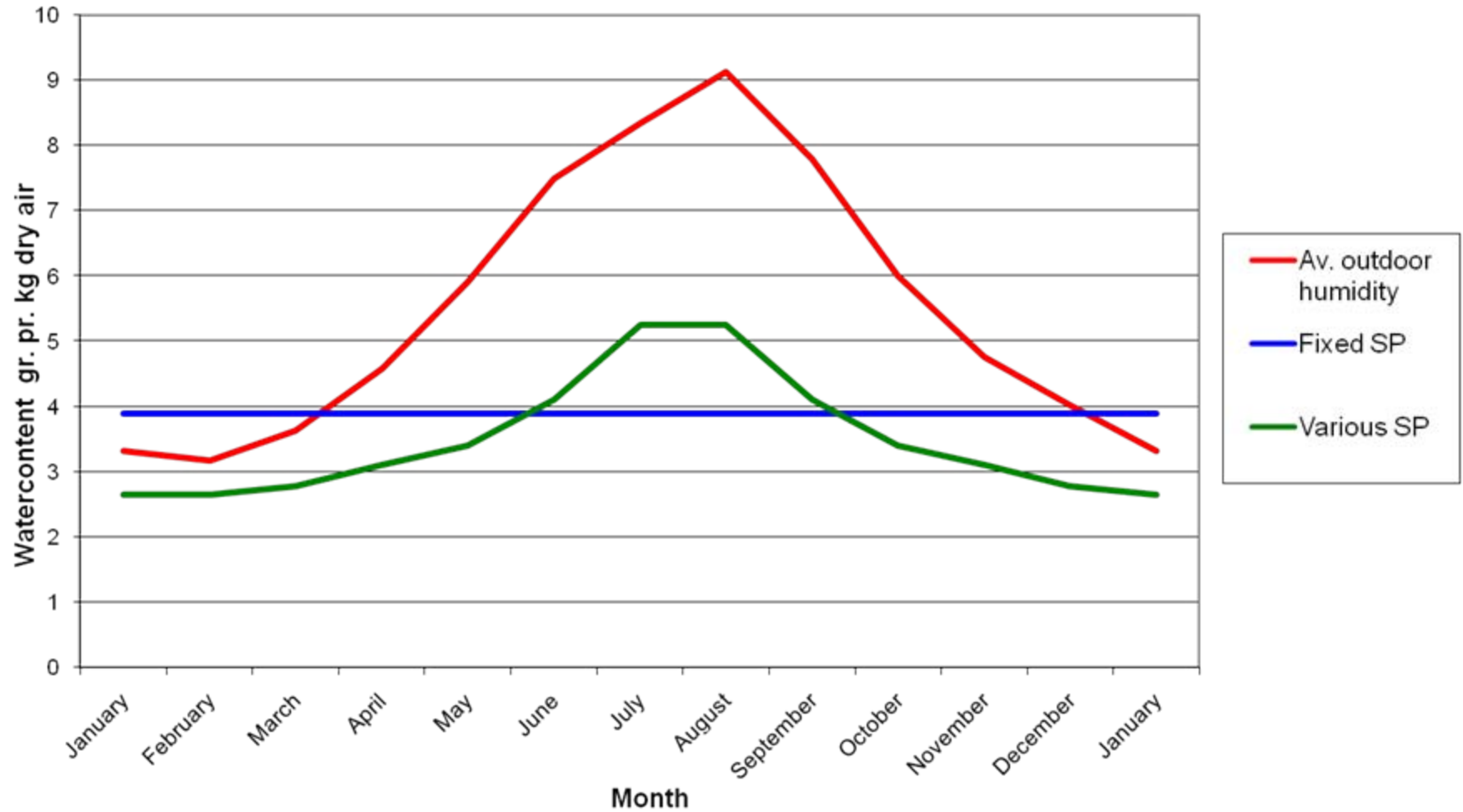


	KBA 1			KBA 2 Fixed			KBA 2 Semi-passive		
Month	Temp	RH	PI	Temp	RH	PI	Temp	RH	PI
January	18	45	64	12	45	140	8	40	277
February	18	45	64	12	45	140	8	40	277
March	18	45	64	12	45	140	8	42	261
April	18	45	64	12	45	140	9	44	215
May	18	45	64	12	45	140	10	46	177
June	18	45	64	12	45	140	12	48	128
July	18	45	64	12	45	140	15	50	82
August	18	45	64	12	45	140	15	50	82
September	18	45	64	12	45	140	12	48	128
October	18	45	64	12	45	140	10	46	177
November	18	45	64	12	45	140	9	44	215
December	18	45	64	12	45	140	8	42	261
<b>Average</b>			<b>64</b>			<b>140</b>			<b>190</b>

# Temperature indoor / outdoor



# Moisture indoor / outdoor





# Climate zones



	Frost: nitrate	Cold: photo	Cold: Acidic paper	Cool: books	Room temp: books
	-5°C 30 % RH	2°C 30 % RH	5°C 30 % RH	8°-16° C 40-50 % RH	20° C 50% RH
2010	212 m	6.000 m	-	22.000 m	44.000 m
2020	-	5.000 m	30.98 m7	14.576 m	-

