SafeCult

Module 1

RISK MANAGEMENT FOR WRITTEN CULTURAL HERITAGE

1.3 Disaster Control Plan
Romanian Academy Library (B.A.R.)

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Table of Content

1. Disaster Control Plan

Cultural heritage is the property of not only the host country, but also of mankind. For a safe transmission of this heritage to future generations it is an essential responsibility to take measures against risks which threaten the cultural heritage. Therefore, any library plan needs a plan to control and manage risks of all kinds drawn according to laws and decisions in force.
It is vital for any library, no matter what its size, to take every precaution possible to prevent the occurrence of an avoidable disaster. Of equal importance is having measures in place to cope with the consequences of disasters, whether they be natural or man-made.

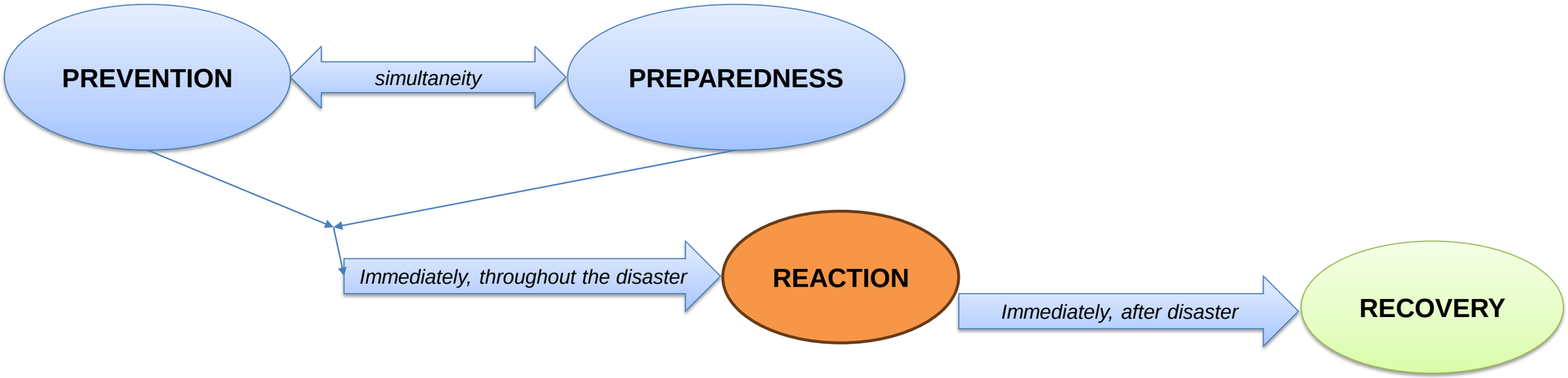
Disaster planning involves a sequence of phases:

- Risk assessment ascertaining the potential dangers to the building and its collections;
- Prevention implementing measures which will remove or reduce any danger;
- A plan written clearly and understood by everyone likely to be involved;
- Updating the plan regularly and storing copies on- and off-site.

It is the responsibility of the library manager to initiate, coordinate, and implement the development of a security policy within the library. When drafting such a policy other libraries, police, and staff should be consulted (according to IFLA).
A *Disaster Control Plan* is based on a detailed documentation on a targeted location (in our case a national library) made up of: building(s), system of installations, emergency equipment, collections / holdings, dealing with sensitive materials and data protection.
A *Disaster Control Plan* should include plans of prevention and preparedness, reaction and recovery, according to specific norms of organization of fire prevention and extinguishing for all places of activity *in situ*. It should contain information on site plans and utilities lists, management tasks, priority and emergency procedures. It represents also an opportunity to fix historic problems, expand programs or personnel, or initiate new surveys on emergency or long-term restoration.

Prevention and Preparedness start from the construction of the buildings and continue with the quality of the installations, their maintenance and the organization of people to prevent and deal with hazards.
Once the risks have been assessed, the library buildings should be secured and the emergency services (fire, police, and hospital) contacted.33

Content of disaster control plan: prevention, preparedness, reaction, recovery



PREVENTION – *IDENTIFICATION, ASSESSMENT, MANAGEMENT OF RISKS*

❋ *identification of any kind of problems* and immediate report to the people in charge (using tools as *Risk Alert Form* and the *Risk Tracking Sheet*);

❋ identifying any external and internal threats that might cause problems for the collections;

❋ assessment of any shortcomings of disaster prevention measures which are already in place;

❋ identifying external environmental threats;

❋ *risks analysis and assessment* (measuring the probability and the impact of risks on a rating scale)

❋ *estimating the probability of risks materialization and the impact* on the activities within the objectives;

❋ establishing the *risk management strategy (risk response)* by identifying the most appropriate ways of treating risks;

❋ monitoring the *implementation of control measures* and reviewing them according to the effectiveness of the results;

❋ routine maintenance (record of the checks performed on the technical means of prevention and extinguishing)

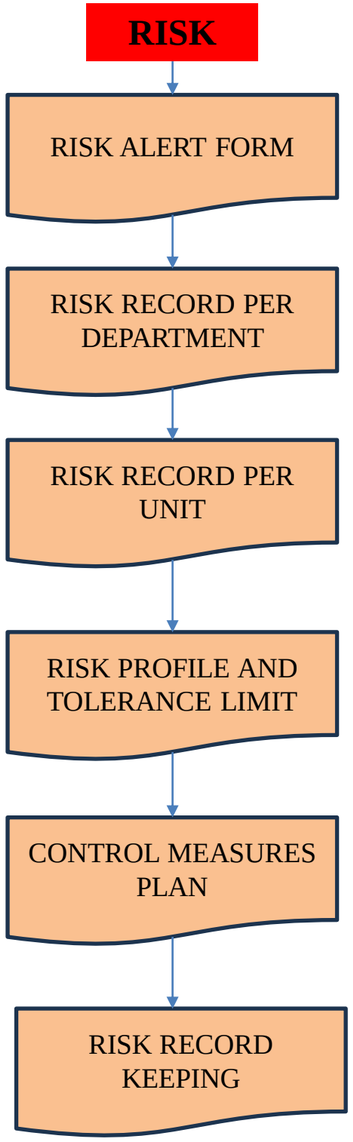
❋ involving the entire staff, based on the principle that "the one who carries out an activity knows best the causes that can prevent it from being carried out“; identifying risks is an obligation equally for the heads of departments and for all the staff;

❋ consulting with fire departments will help to find any potential hazards which are not immediately obvious;

❋ realizing *risk registers* for the entire institution and for each level (department).

see below:
the *Document Flow Diagram;*
the *Risk Register for the Department of Manuscripts and Rare Books of the Romanian Academy Library;*
the content of *The System Procedure for Risk Management code PS-02* elaborated by B.A.R., which stipulates the organizational context in the identification, analysis, evaluation of risks and implementation of the risk control measures.

DOCUMENT FLOW DIAGRAM



Risk Management Methodology, elaborated by the Romanian Government, within the Operational Program Administrative Capacity (POCA), chapter IV, p. 47 https://sgg.gov.ro/1/wp-content/uploads/2018/07/ Metodologia-de-management-al-riscurilor-2018.pdf

RISK REGISTER FOR THE DEPARTMENT OF MANUSCRIPTS AND RARE BOOKS OF THE ROMANIAN ACADEMY LIBRARY

Risk areas Risk	Obiectives	Risk Description	Specific Requirements	Risk Manager	Inherent Risk			Risk Strategy (actions for risk treatment)	Internal Control	Implementation Timeline	Date of last review and stage of action	Rezidual Risk			Possible Secondary Risks	Obs.
					Proba-bility	Impact	Exposure					Pro-babi-lity	Impact	Exposure		
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
Department of Manuscrispts-Rare Books	Preservation of collections Restoration of documents Parchment restoration	Ensuring the storage conditions for special collections Fighting fungi and other pests Ensuring a suitable climate (constant temperature and humidity) Making protective boxes for manuscripts and making supports for consulting manuscripts in the reading room; purchasing gloves for material handling;	Excessive heat and cold, lack of disinfection equipment, lack of fire extinguishing equipment; lack of installation to maintain a constant temperature and humidity; lack of a restorer for parchment; lack of protective boxes; lack of supports and gloves for consulting the manuscript volumes; lack of an anti-theft installation; lack of thermo-hygrometers for measuring temperature and humidity	Technical – Administrative Dept., Bibliography Management, Head of Manuscript – Rare Books Dept. Head of Accounting Dept.	5	3	15	Development of procedures to combat identified risks	Checking the implementation of procedures at all levels of responsibility	Permanent	13.11. 2019	1	1	1		

BIBLIOTECA ACADEMIEI ROMÂNE

ACADEMIA ROMÂNĂ BIBLIOTECA

APROBAT,
DIRECTOR GENERAL
Prof. ing. Nicolae NOICA

PROCEDURA DE SISTEM
privind
MANAGEMENTUL RISCURILOR

Cod: PS-02, Ediția: I, Revizia: 0

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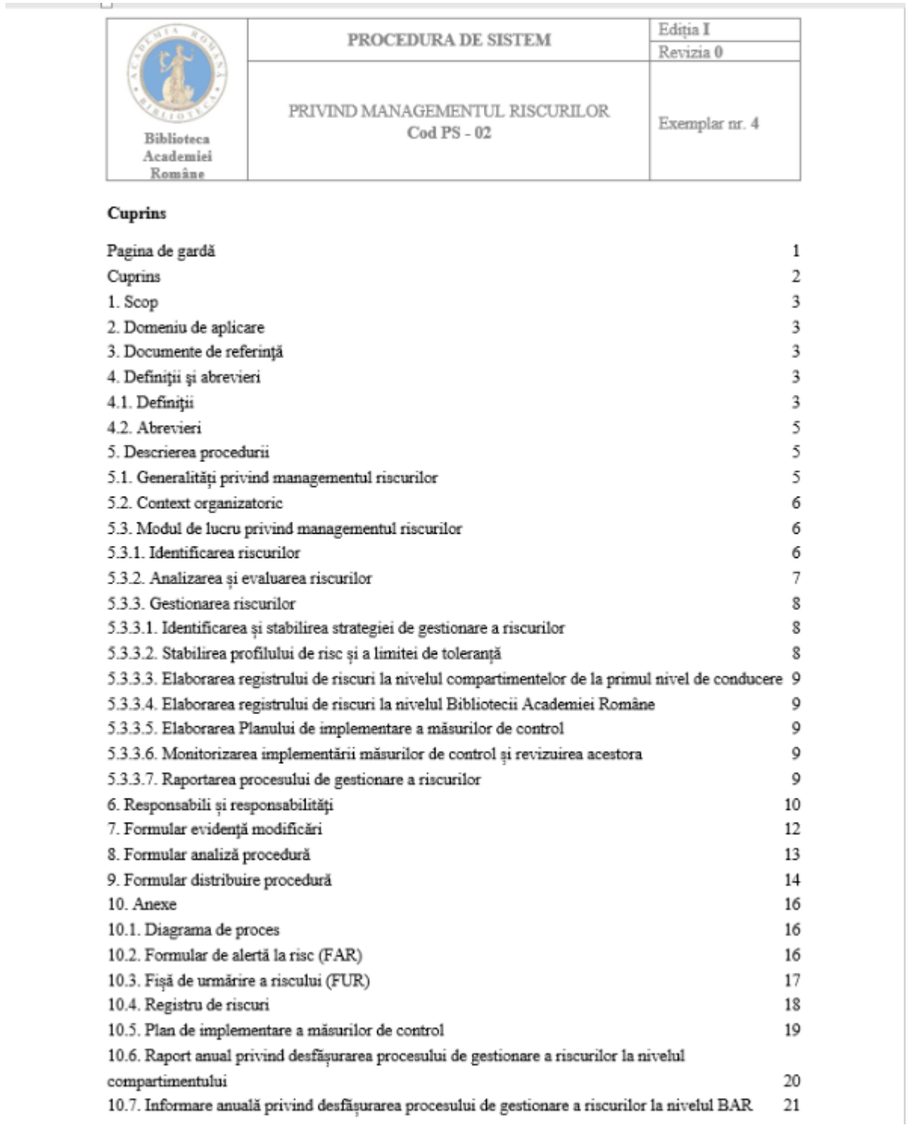


Biblioteca Academiei Române	PROCEDURA DE SISTEM	Ediția I Revizia 0
	PRIVIND MANAGEMENTUL RISCURILOR Cod PS - 02	Exemplar nr. 4

Cuprins

The System Procedure for Risk Management at the Romanian Academy Library (PS-02)

Contents

10.2. Formular de alertă la risc (FAR)

FORMULAR DE ALERTĂ LA RISC			FAR
Compartiment			
Detalii privind riscul			
Descrierea riscului 1	Risc identificat		
	Obiectivul specific / activitatea		
	Cauze		
	Consecințe		
Evaluarea riscului 1	Estimarea probabilității de apariție		
	Scăzută ☐ S(1)	Medie ☐ M(2)	Ridicată ☐ R(3)
	Estimarea impactului		
	Scăzut ☐ S(1)	Mediu ☐ M(2)	Ridicat ☐ R(3)
	Evaluarea expunerii la risc		
	☐ SS(1) ☐ SM(2) ☐ SR(3) ☐ MS(2) ☐ MM(4) ☐ MR(6) ☐ RS(3) ☐ RM(6) ☐ RR(9)		
Opinie cu privire la risc	☐ Clasare 2 ☐ Escaladare ☐ Reținere pentru gestionare	Tipul de răspuns la risc (strategia adoptată)	☐ Acceptare 2 ☐ Monitorizare ☐ Evitare ☐ Transferare ☐ Tratare
	Măsuri de control recomandate 1 2		Termen 1 2
Documentația utilizată pentru fundamentarea riscului			1
Persoana care identifică riscul 1	Responsabil cu riscurile 2	Conducător compartiment 3	
Data întocmirii FAR	Data primirii FAR	Decizia conducătorului	
		☐ Clasare ☐ Escaladare ☐ Reținere pentru gestionare 3	

16/21

10.2 Risk Alert Form / FAR

Compartment / Risk Details

Risk Description: Identified risk; Specific activity; Causes; Consequences
Risk Evaluation: Estimating Risk Probability (low; medium; high); Estimating Risk Impact; Estimating Risk Exposure
Opinion on Risk: Classification; Escalation; Suggestion for Application; Type of Risk Reaction (adopted strategy): Accepting; Monitoring; Avoiding; Transfer;
Treatment
Recommended Control Measures / Target Date
Documentation for Risk Evidence
Risk identification person: Risk Responsible; Department Manager
Date of FAR elaboration; FAR Receipt Date; Manager Decision: Classification; Escalation; Suggestion for Application

10.3. Fișă de urmărire a riscului (FUR)

FIȘĂ DE URMĂRIRE A RISCULUI		FUR
Compartiment		
ID RISC	Risc monitorizat	
Expunere risc inerent	☐ MS(2) ☐ MM(4) ☐ MR(6) ☐ RS(3) ☐ RM(6) ☐ RR(9)	
Măsuri de control		Termen implementare
Stadiul implementării măsurilor de control		
Dificultăți întâmpinate		
Acțiuni noi propuse		Termen implementare
Expunere risc rezidual	☐ SS(1) ☐ SM(2) ☐ SR(3) ☐ MS(2) ☐ MM(4) ☐ MR(6) ☐ RS(3) ☐ RM(6) ☐ RR(9)	

Evaluare	Data	Elaborat (Persoana care identifică riscul)	Verificat (Responsabil cu riscurile)	Aprobat (Conducător compartiment)	Mențiuni conducător compartiment
		Semnătura			
I					
II					
III					

10.3. Risk Monitoring Sheet (RSK) / FUR
Department
ID Risk / Monitored Risk
Inherent Risk Exposure: MS (2); MM (4); MR(6); RS(3); RM(6); RR(9).
Control measures / Implementation Timeline
Control Measures Implementation Stage
Difficulties encountered
New actions proposed / Implementation Timeline
Residual Risk Exposure: SS (1); SM (2); SR(3); MM(4); MR(6); RS(3), RM(6), RR(9).
Evaluation : I, II, III / Date / Elaborated by (person who identifies risk) / Reviewed by (risk responsible) / Approved by (department manager) / Manager observations / Signature

10.5. Plan de implementare a măsurilor de control

Nr. crt.	Denumire risc	Măsuri de control	Termen implementare	Responsabil cu implementarea	Observații

10.5. Control Measures Implementation Plan No. / Type of hazard / Control measures / Implementation timeline / Responsible for implementation / Remarks

PREPAREDNESS

Building floor plans which indicate: storage areas, windows, entrances, and exits; fire extinguishers; fire alarms; sprinklers; smoke/fire detectors; water, gas, and heating pipes; elevator controls; electrical and water supply and cut-off points. If water-based fire protection systems, such as sprinklers, are to be installed, provision should be made for rapid drainage.

Priority rescue lists made by departments, stating which items are to be salvaged from individual rooms.

Record-keeping forms: multiple copies of all forms that may be needed in the salvage operation, including inventory forms, packing lists, requisitions, and purchase orders etc.

Selecting and training (in disaster workshops, with practice in a simulated disaster site) an emergency response team comprising voluntary members of staff who live near the library.

A list of external contacts and names, addresses, and home and work telephone numbers of personnel with emergency responsibilities.

Detailed, step-by-step instructions on all phases of salvage operation, covering a range of incidents that are possible (e.g., roof/plumbing leaks, flooding, and fire) and the various media included in the collections, such as books and journals, manuscripts/records, coated vs. uncoated items, sound recordings, photographic media, computer/electronic media etc.

Instructions for long-term rehabilitation: procedures for activities including identification and labelling, smoke/soot removal, cleaning, sorting and rehousing, repair and rebinding etc.

Areas which could be used for recording and packing material.

Locations for temporarily rehousing staff and material.

Contracts with local freezer services.

PREPAREDNESS

Contracts with vacuum-drying services.

Arrangements with transportation services.

Supplies for transporting, cleaning, and sorting material.

Accounting information: description of institutional funds available in a recovery effort and procedures/authorization for access to them.

Insurance information: explanations of coverage, claim procedures, record-keeping requirements, restrictions on staff/volunteers entering a disaster area, and information on state/federal disaster relief procedure.

In order to prepare an adequate response, the institutions are liable to elaborate plans and scenarios for actions and evacuations during and after disaster, documents established in national normatives.

See examples below, extracted from *Rools of Fire Prevention and Extinguishing Specific to Units with Education Profile* (2000), elaborated by the Ministry of Education approved by the General Inspectorate of the Military Firefighters Corps :

FIRE ESCAPE PLAN
(Appendice 10)

FIRE ESCAPE PLAN

A. THE EVACUATION TEAM

CRT. No.	RESPONSABILITY	SHIFT No.		
		I	II	III
1.	Team leader			
2.	Responsible for route I			
3.	Responsible for route II			
4.				

B. EVACUATION ROUTE AND EVACUATION ORDER

ROUTE	DESCRIPTION OF THE ROUTE	DESCRIPTION OF THE STAFF AND MATERIALS	SEQUENCES OF THE EVACUATION	POST-EVACUATION SPARE SPACES

C. MEASURES AND MEANS OF PROTECTION

a) for people _____

b) for goods/holdings _____

D. EVACUATION SKETCHES *)

*) The sketch with the routes to follow in distinct colors

ORGANIZATION OF FIRE PREVENTION AND EXTINGUISHING ON PLACES OF ACTIVITY (Appendice 9)

Fire risk level: .....

A. Fire prevention and extinguishing measures

- Using open flames and smoking in places with a risk of explosion and fire is prohibited.
- It is not allowed to keep or place various machines, furniture or other materials on the escape routes, next to the access to the water supply sources and means of extinguishing fires.
- It is forbidden to use for other purposes the means intended for extinguishing and fire prevention.

_____
_
_____
_

Specific measures

_____
_
_____
_

B. Notification of fires

In case of fire, the following is announced:
- The private civil fire service by phone no. _____ or _____
- The military fire department by phone no._____ or _____
- The head of the unit by _____
- Service electrician by _____

C. Firefighting team

CRT. No.	RESPONSABILITY	SHIFT No.		
		I	II	III
	Team leader			
	announces the fire			
	announces the electrician or interrupts electricity			
	handles the hydrant no. 1 ... no. 2 ... no. ..			
	handles the foam extinguisher, with dust and CO2			
	handles buckets of water			
	evacuates the materials *) - on route I - on route II			
	- other measures (handling the curtains of protection, smoke exhaust hatches, drenching etc.)			

D. Security Measures

- a) for staff _____
_____
- b) for goods/holdings _____
_____

E. Evacuation plan **)

_____

*) For the sectors of activity where, according to the rules of prevention and extinguishing fires, evacuation plans are drawn up, they are not completed.
**) A diagram of the room, floor etc. is drawn up, with the routes to be followed (marked with different colors).

FIRE SAFETY SCENARIO
(Appendice 12)

A. CHARACTERISTICS OF THE CONSTRUCTION (TECHNOLOGICAL INSTALLATION)

1. Construction name (installation):
located in the county/sector, town, str. no.
Postal code
* Purpose of construction (facility): having functions: a) main; b) secondary
* Construction importance category:
* Construction importance class:
* Type and construction specific features:
- civil (high, very high, ordinary);
- of production and/or storage (monobloc, armoured, ordinary);
- with mixed functions (civil - production - storage);
- built area - Ac = sqm;
- unfolded area - Ad = sqm;
- no. fire compartments: the areas of the fire compartments: sqm;
- height regime of the construction: (compartments) S+P+M+E (m height compared to land/roadway);
- volume of construction (fire compartments) mc.
* Construction users:
- people (maximum simultaneous capacity):
- people in the building (compartment);
- people by levels:
. S = pers.
. P = pers.
. E1 = pers.
. E2 = pers.
Ex = pers.
- storage type and capacities (for repositories);
* Number of escape routes (and, as the case may be, of the refuges)

B. PERFORMANCE CRITERIA LEVELS AND SAFETY TIME AT FIRE INSURANCE ACCORDING TO TECHNICAL REGULATIONS

1. Fire risk (danger category): determined according to:
- thermal load density:
- classes of combustibility and dangerousness of the materials and substances used in the building:
- potential ignition sources:
- circumstances favoring the occurrence of fires (as applicable):

* Fire risk level (danger category) of the construction (compartment) or technological installation:

* Possibilities to reduce the risk of fire, as the case may be, (according to the technical regulations and functional conditions):

2. Fire resistance of the construction:

* Combustibility and fire resistance of the main construction elements:
- pillars, columns, load-bearing walls; C min.
- non-load-bearing interior walls; C min.
- non-load-bearing external walls: C min.
- beams, slabs, ribs, terraced roofs: C min.
- self-supporting roofs in front of the bridge: C min.
- covering panels and continuous support of the combustible cover C min.

* Degree of fire resistance of the construction:

* The fireproof compartment and the elements to protect the gaps in the walls and floors fireproof:
- walls Co min.
- Plans Co min.
- doors, shutters, etc., resistance to fire Co min.

* Additional fire protection measures (as the case may be, technically justified):

3. Preventing the spread of fire:

* In the vicinity and within the construction:
- safety distances (compensatory measures when they are not ensured):
- constructive measures (walls, floors and the protection of the gaps in them):
- estimation of fire propagation time to neighboring buildings:
- smoke exhaust systems (or of hot gases):

4. Fire behaviour

5. Fire stability: (estimated according to the lowest fire resistance of the main structural elements provided, namely pillars, columns, load-bearing walls, beams, slabs, ribs, terrace roofs, self-supporting roofs without a bridge).

6. Ways of access, evacuation and intervention:

* Technical and functional characteristics of accesses and road traffic:
- dimensions (gauge);
- trails;
- realization and marking.

* Characteristics of internal evacuation routes:
- constructive composition: C min.
- protection of the gaps in the walls that limit them; doors; shutters;
- type of stairs:
- shape and arrangement of the steps:
- geometry of the escape routes: . width: m; . height: m;
- evacuation times: sec; . length; m;
- number of exhaust flows: ;
- existence of evacuation lighting; . backup power supply;
- marking escape routes;
- safety time on the escape routes: min.
- survival time in the escape routes: min.

* Emergency lifts:
- capacity; kg:
- number;
- characteristics;
- location;
- access possibilities;
- backup power source ;
- elevator safety time; min.
- survival time; min.

C. EQUIPMENT WITH TECHNICAL MEANS OF FIRE PREVENTION AND EXTINGUISHING

7. Equipment and equipment with:

* Signaling, alarming and alerting systems, installations and devices in case of fire;
- type;
- action;
- alarm time: sec.
- alert time: sec.
- protected areas
* Systems, installations and devices for limiting and extinguishing fires:
- type (water, gases, foam, powders):
- operation (automatic, manual):
- debit:
- pressure:
- reserve:
- power sources:
- theoretical (standard) operating time: min.
- areas, rooms, spaces, installations equipped with such installations:
* Extinguishers and other fire extinguishing devices, machines, tools and initial means of intervention:
- type:
- number;
- location mode (function of specific parameters):
. maximum area: sqm;
. fire classes:

D. SPECIFIC CONDITIONS FOR PROVIDING THE INTERVENTION

* Power sources:
- with water (reservoirs, pools, rivers, ponds, lakes, sea):
- other extinguishing substances;
- positioning of electricity supply connections;
- ensuring the fire service (when it is mandatory), respectively:
. service category:
. its equipment (mobile means of intervention and rescue):
- areas, rooms and spaces where extinguishing products and special equipment are needed:
- type;
- quantities: mc (tons);
- their state: (solid, liquid, gaseous);
- the type of protective equipment;

E. CONCLUSIONS AND TECHNICAL-ORGANIZATIONAL MEASURES

* Conditions and necessary measures to be taken:
- assessment of the performance levels:
- proposals for improving parameters and performance levels:
* Highlighting the conditions and recommendations that must be taken into account when drafting fire equipment documents:

Date:

RECORD OF THE CHECKS PERFORMED ON THE TECHNICAL MEANS OF PREVENTION AND EXTINGUISHING (Appendice 20)

No.	OBJECTIVE TO BE TESTED	CONDITION	PERIODICITY
I.	**FIRE ALARM INSTALLATIONS**		
	a) Warning central Operating status of installations	by action from every point of alarming	monthly
	b) Smoke detectors		weekly
	c) Temperature detectors		quarterly
II.	**EXTINGUISHING INSTALLATIONS**		
	a) Inside hydrants (inventory, pressure)		weekly
	b) External fire hydrants 1. Operation check 2. Pressure determination and debit 3.Valve tightness 4. The tightness of the valve drainage 5. Frost protection	with pressurized water through visual inspection	every six months spring -autumn idem idem annually in autumn
	c) Draining and water spraying installations 1.External condition of installation 2. Effective operation of the installation 3. Availability of operation of the installation and pressure needed 4. Formation of the surface of spraying by nozzles	visual inspection by starting the unit by starting the water pumps and function of the water system under pressure	in every shift in every shift, monthly monthly spring and autumn
	d) Steam extinguishing installations 1. External condition of the intake facility and its drainage 2. Valve status from outside of building 3. Effective operation of the installation		every shift idem
	e) Foam extinguishing installations 1. External condition of the installation and pressure 2. Effective operation of the entire installation for each generator of foam	visual inspection by establishing a escape route a foam on the outside	weekly annually
	f) extinguishing installations with carbon dioxide and others 1. Operation reinforcements of command, of alarm device 2. Operation install. of ventilation ducts, of closing and blocking doors, flaps, signaling etc. 3. Room tightness which floods with inert gas 4. Effective operation of the installation, except for installations of evacuation of II.2 from generator 5. State of filling with inert gas	Supplier's ind. Supplier's ind. visual inspection by discharging a single gas container by weighing a gas	Supplier's ind. Supplier's ind. annually every two years quarterly

III.	**EXTINGUISHING MEANS**		
	g) Chemical foam extinguishers The presence of the label of loading		
	h) extinguishers with carbon dioxide and powder 1. The presence of the label of loading Actual status of loading Humidity and dust accumulation		monthly monthly each semester
	i) fire water tanks 1. Level maintenance, tightness check fittings and connections 2. Valve operation with float and level indicators 3. Deposit level in tank and cleaning submissions	by control in installation by simulating the variation the level by emptying the reserve. With taking measures of emergency insurance	daily weekly
	j) hydrophores at the fire water installations 1. Ensuring the pressure of established thing. 2. The correct indication a pressure gauges on the air side 3. Operation valves of safety	Reading the directions pressure gauges. by purging gauges by raising the pressure ISCIR training conf.	every shift idem monthly
	k) pumping station for fire water 1. Availability of operation of the pumps 2. Operation command system from a distance 3. Operation devices of signaling at distance. 4. The correct indication of gauges of fire pumps 5. Checking the pressure of operation of the pumps.	by putting in function for 5 m of each pump by acting from command distance by reading the directions pressure gauges during pump operation	weekly idem idem
IV.	**PROTECTIVE MEANS**		
	m) Fire resistant doors 1. Maintenance closed. 2. System closing		on the occasion of the daily control quarterly
	n) Shutters, flaps, smoke exhaust devices Mode of operation		annually
V.	**FIRE PREVENTION AND EXTINGUISHING SUBSTANCES**		
	a) preventive substances Flame fireproof paint for exterior and		every 6 months every
	b) extinguishing substances 1. Liquid foaming agent maintenance check qualities over time 2. Foaming powder 3. Extinguishing powders 4. Single dust type I. and II.		every 6 months annually in the first 3 years of manufacture 1 year idem

REACTION

An Intervention Plan is mandatory for heritage holding entities in case of fire hazard.

THE INTERVENTION PLAN

- Frame structure -

1. Identification data: Name of institution
* headquarters, location of buildings/address, phone number, fax;
•activity profile – library
2. The general plan of the building, marking:
* building site, technological and on-premises repositories;
•access and intervention routes and those adjacent to them;
3. The concept of organization and implementation of intervention in case of fire:
- conclusions regarding the intervention, results or from the evaluation of the defense capacity against fires;
* tactical particularities of intervention - their type and capacity for:
  - evacuation of users (people and holdings), providing first aid assistance and holdings protection;
  - protection of intervention personnel;
  - removal of major negative effects.
4. Intervention forces in case of fire:
* civil firefighter services for fire safety to cooperate with (category, locality, distance, travel itinerary, telephone or other alerting and alarming means)
*other forces with whom they cooperate and the means of announcement (ambulance, civil protection etc.)
* own water supply networks and sources and other extinguishing substances;
* reserves of extinguishing agents and means of protection of intervention personnel;
* networks and power supply connections, thermal agent, gases and other fluids, fuels;
* sewage networks;
* surroundings;
5. Sources of water supply in case of fire, from the premises and those adjacent to it;
*water supply networks;
* water debits;
* pressures;
* the location of hydrants and the distances against the premises of the unit;
*other artificial or natural sources of water;
  - their type and capacity;
  - feeding platforms (points) and distances from the unit.
6. The plan of each construction, technological installation or storage platforms on which are marked data about:
* destination of spaces (rooms);
* built surface and developed area;
* height regime (number of levels);
* number of people using the building on floors and in total;
* access, evacuation and intervention routes;
* nature of materials and elements of construction;
* levels of the performance criteria regarding fire safety should be ensured;
* related utilities;
* installations, systems, devices and appliances of fire prevention and extinguishing with which it is equipped.

Once a fire occurs, Fire Emergency Evacuation Broadcast System starts immediately, based on pre-elaborated fire scenarios.

Fire scenario: A qualitative time description of the course of a fire, identifying key events that characterize the fire and differentiate it from other possible fires, typically defines the ignition and fire growth process, the fully developed stage and the decay stage, together with the building environment and systems that will impact on the course of the fire.

(from **Fire safety engineering concerning evacuation from buildings CFPA-E Guideline No 19:2023 F**, https://cfpa-e.eu/app/uploads/ 2022/05/CFPA_E_Guideline_No_19_2023-F.pdf)

A fire scenario is the description of the whole developing process of a possible fire, probability factors and determinant factors included.
Specific factors include the layout of the building, fire load and distribution, the location of the fire source, the distribution and status of the person, and environmental factors etc.
A fixed fire scenario includes the following actions:

1. Identify the fire spot;

2. Assess proportions and escalation;

3. Announce hierachical person in charge or authority;

4. Follow instructions of the head in charge without panic;

5. Head for eventual specific equipment;

6. Isolate fire source by shutting doors, windows, if possible;

7. Suppress fire manually, besides the automatic sprinkler system, using screens, extinguishers, anti-inflammable materials;

8. Evacuate library collections affected in position as established in rehearsals.

To characterize fire scenarios, logical process to be followed may be summarized into three points:

• Taking into consideration all possible fire scenarios;
• among all possible fire scenarios, choosing one (or, more often, some of them) that are considered the most probable and onerous. They are the design fire scenarios;
• for the chosen design fire scenarios, calculating the quantitative levels of all the factors that influence egress (e.g. smoke, visibility, heat, etc.).
Normally, the number of possible fire scenarios is quite high. For this reason, their number is normally reduced using design fire scenarios.

Plan testing and reviewing
1. Periodical review of the plan;
2. Distruction of previous copies;
3. Testing the plan to ensure efficiency;
4. Training the staff to be familiar with the contents and following procedures stated in the plan.

PARAMETERS TAKEN INTO CONSIDERATION IN ELABORATING FIRE SCENARIOS

(definitions from **Fire safety engineering concerning evacuation from buildings CFPA-E Guideline No 19:2023 F**, https://cfpa-e.eu/app/uploads/2022/05/CFPA_E_Guideline_No_19_2023-F.pdf)

RSET - Required safety egress time; calculated time required between ignition of the fire and the time at which the evacuation is completed and all occupants are in the place of safety.

Safe evacuation time is affected greatly by the subjective factor of man, such as density distribution, psychological and behavioural characteristics etc., thus, specific measures include implementation and strengthening a proper safety education, regular fire drills and the like, increasing the width of the evacuation routes, and the number of exits, which could divert the occupant density, increase the evacuation speed, thus to shorten RSET (Required Safety Evacuation Time).

Escape time in safe conditions (RSET, Required Safe Egress Time) depends on four different "times", influenced by occupants' physical and behavioural characteristics. The four times are:

Detection time: the time from the beginning of ignition to its detection by a manual or automatic system. It may vary according to the fire scenario, the fire detection system (if in place) and the ability that occupants have to detect the fire.

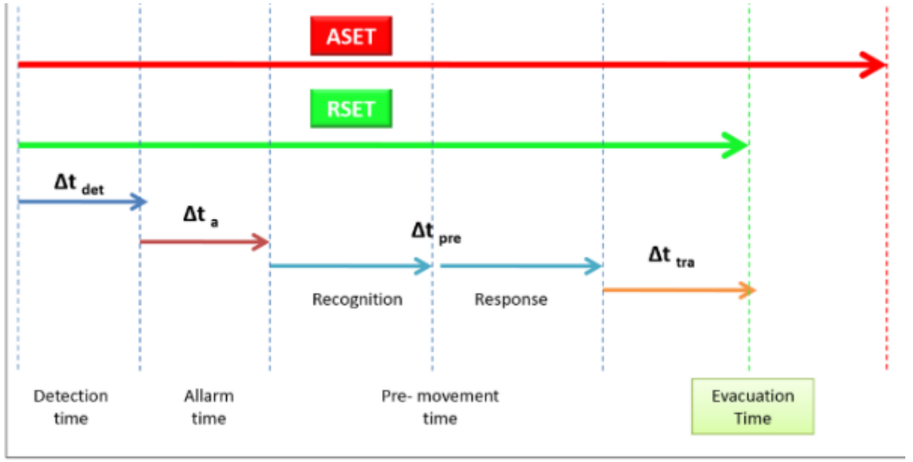
Alarm time: the time from the detection to triggering a general alarm.

Pre-movement time: delay time to start evacuation movement; the time from detection to the moment, the first occupant starts moving; time interval between the warning of fire, being given by an alarm or by direct sight of smoke or fire, and the first move being made towards an exit. This interval includes the perception of the alarm, the interpretation of the alarm, and the decision-making on how to proceed; specific training on how to behave in case of emergency will provide shorter pre-movement times.

Travel time: the time occupants take to move from where they are to a safer place.

RSET = Alarm time (Fire Detection Time) + Pre-movement Time + Evacuation Movement Time or tRSET = tdet +ta +(tpre +ttrav)

See the diagram below



ASET - Available safe egress time; calculated time available between ignition of a fire and the time at which tenability criteria are exceeded in a specific space in a building.
Calculating ASET time depends on the nature of the fire, because combustion products give place to untenable conditions in the zone that is being evacuated.
The concentration and nature of the combustion products and their spread depend on the following factors:

- Chemical elements of substances involved in combustion;
- maximum temperature;
- oxygen concentration;
- ventilation.

Evacuation model – establishing the escape routes

❋ Escape route - route forming part of the means of escape from any occupiable point in a building to a final exit.

By analysis of fire load, evacuation crowds and the route (Reading Rooms) is the most unfavorable point for safety evacuation.

The evacuation process involves many uncertain factors. To simplify the calculation and analysis in the paper, a safety coefficient 1.5 was put forward; and in the calculation and simulation of RSET and ASET, the initial and boundary conditions were ideally assumed. Considering to the possible errors, it was necessary to extend ASET (the time of the fire reaching a dangerous state), and shorten RSET (the safety evacuation time) in practice.

Saving human life is the most important objective in fire protection processes. Proper evacuation plans are essential to reach this objective. Two methods can be considered:

• The first is the prescriptive method, which deals with the occupancy, size and number of exits together with the maximum length of the escape routes;

• The second is the performance method, which deals with the maximum time limit for evacuation.

The first method is based on three main points:

• density of people;

• flow of people;

• length and width of evacuation routes.

The second method establishes if the required evacuation time is less than available safety egress time.

The performance method depends on the definition and comparison between the time available for occupants to reach a safe place, ASET (Available Safe Egress Time - the time at which tenability criteria are exceeded in a specific space) and the time occupants take to reach a safe place RSET (Required Safe Egress Time - it is the escape time).

The engineering approach requires a margin of safety, given by the difference between ASET and RSET time. This margin of safety may be useful for the uncertainties in the prediction of the two times.

$$T_{safety} = T_{ASET} - T_{RSET}$$

Performance method may be used in complex or singular buildings where a prescriptive approach could not be adequate. The engineering approach can also evaluate and validate the solutions of prescriptive methods.

Survey of the areas of evacuation
The size and disposition of book shelves, the area of different reading rooms and the book collections items must be investigated.
Each survey needs rehearsals for getting scientific data of evacuation crowds at different periods.

Documentation at incident site
Visual assessment
Take pictures after hazard
Record items
Apply appropriate conservation grounds

How to prioritize the order of objects to salvage
Unique artefacts/most precious/rare
Most at risk

RECOVERY

The recovery plan prescribes and implements emergency treatments to minimize threats to life and herritage resulting from the effects of a fire with often important restoration efforts. The recovery plan also stabilizes mitigative measures to lessen the impacts of fire and prevents possible further degradation of cultural resources through actions which anticipate post-fire impact, taken to repair or replace minor or major damages. Treatments do not resolve all potential damages, they synergically provide the most effective set of (re)stabilizing factors.

As it is so important to stay informed and prepared for potentially dramatic increase of severe events, the teams involved must share information from their assessments and offer recommendations after gathering findings in an assessment report that identifies immediate and emergency actions needed to address post-fire risk to human life and safety and critical natural or cultural resources. That is why cultural units should cooperate with all agencies and organizations which could be of help, starting with similar entities facing such issues, continuing with fire operational units and with post-recovery and restoration research structures.

Handling sensitive materials, historical objects which are by nature problematic is a very difficult operation as it implies further precautions not to damage their integrity.
Salvaging such materials imposes:

- a priority for conservation work;
- consulting conservators as to the most appropriate methods for cleaning and repairing material and cost estimation;
- developing a phased conservation programme when large quantities of material are involved;
- selecting items to be discarded, replaced, or rebound from those justifying special conservation treatment;
- cleaning and rehabilitating the disaster site;
- replacing treated material in the refurbished site;
- analysing the disaster and improving the plan in light of the experience;
- liaising with local and district authorities/councils about the availability of temporary storage facilities and other services they may be able to provide;
- cooperating with other libraries, museums, and galleries in the area can save time, money, and resources.

(Acc. IFLA standards)

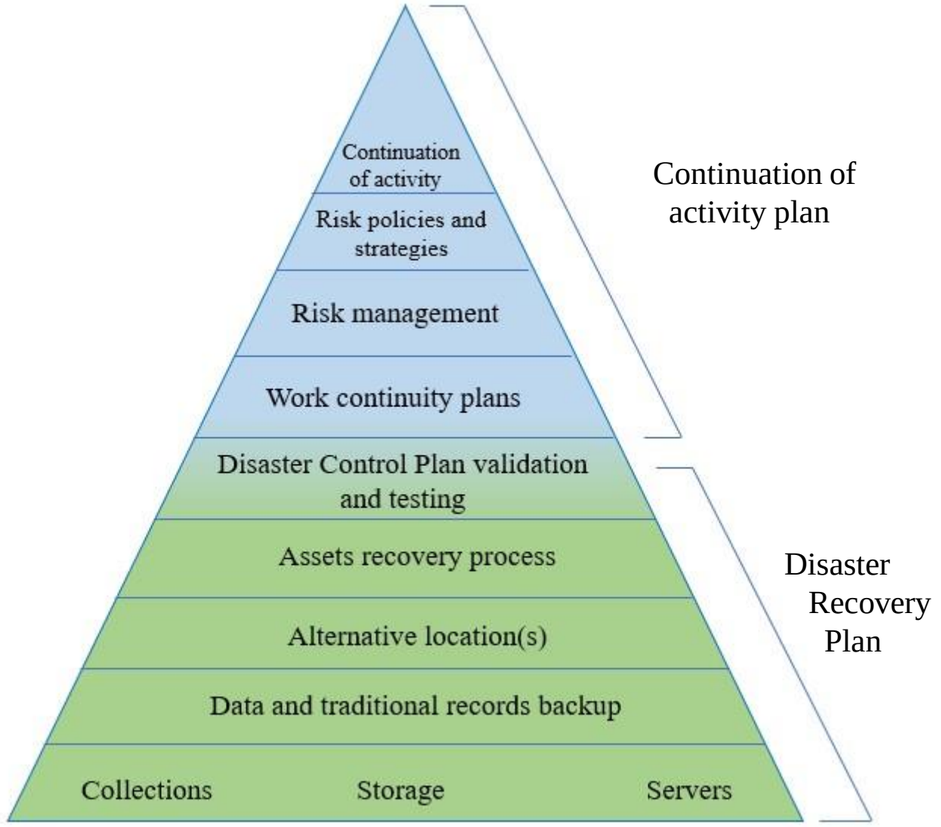
RECOVERY

BAR management should periodically make risk analyses to assess where to focus resources in the disaster recovery process. BAR should identify threats and vulnerabilities that could disrupt the range of operations established in the Disaster Control Plan and should outline its potential severity. Another essential component of the Disaster Control Plan is how communication is handled. Internal communication includes alerts that can be sent using email, building paging systems, voice and text messages to mobile devices. Internal communication includes also instructions to evacuate the building and meet at designated places, updates on the progress of the situation and notices when it's safe to return to the building. External communication includes instructions on how to notify family members in the case of injury or death; how the information reaches media on the status of the disaster.

A checklist of recovery steps after an unforeseen incident for the continuation of the activity should include the following actions:

1. establishing the extent of necessary treatment and activity - the scope of recovery;
2. gathering relevant information on endangered documents;
3. identifying the most serious threats and vulnerabilities, as well as the most critical resources;
4. reviewing the history of unplanned incidents, as well as how they were handled, if possible;
5. identifying the current disaster recovery procedures and strategies;
6. identifying the incident response team;
7. having management review and approve of the Disaster Control Plan;
8. testing the plan;
9. updating the plan;
10. implementing a DCP.

CONTINUATION OF ACTIVITY AND DISASTER RECOVERY PLANNING



2. Building issues: Draw up site plans

The Academy Library of Romania (BAR) is housed in a building designed for this purpose by the Romanian architect Duiliu Marcu in the 4th decade of the last century and in other buildings, added recently, which accommodate both offices and collections.

A brief presentation outlines a building complex (built between 1936-2005), composed of a number of 11 building bodies having regime of variable height (a 10-storey tower, 6-storey and 4-storey buildings and others), which are intended for storage spaces, processing workshops, offices, conference rooms or other civilian uses.

The Academy Library, as a state structure, complies with the general and specific legal regulations of risk assessment and one of its responsibilities is to elaborate emergency planning containing drawings of the buildings, types of installations, records of maintenance, naming people responsible with emergency contact and other tasks.
BAR organization and operation regulations:

- Decision no. 74/21.07.2022 updating the composition and duties of the SCIM Monitoring Commission at the BAR level;
- Regulation on the organization and operation of the Monitoring Commission;
- Procedure PS-01 regarding the development of procedures at the BAR level;
- Risk management methodology – recommended to go acc.to the SGG Methodology available online, as a useful tool in approaching risk management

  The Disaster Control Plan of the Academy Library contains risk control measures (for risks above the tolerance limit) established in the Risk Registers at the level of the departments of the first level of management, STCM (The Technical Secretariat of the Monitoring Commission), who elaborates the Plan for the implementation of control measures, later forwarded to the President of the CM and the general director for approval;
- The control measures implementation plan may also include the recommendations regarding the control measures included in the audit reports of the Internal Public Audit Office, the Court of Accounts of Romania; this attribution of monitoring and inclusion of recommendations rests with the STCM;
- The approved control measures implementation plan is sent to CPNC (the departments at the first management level) leaders, for the implementation of control measures, measures related to existing risks.

In terms of fire hazard the buildings of the Romanian Academy Library are equipped with installations for extinguishing fire with water using **two systems: hydrants and sprinklers**. The water is supplied from **a buried tank**, made of reinforced concrete, which can be fed both from the street network and from an own well with a submersible pump.

To obtain a pressure in the installation, a group of pumping devices is located on the ground floor of one of the buildings in a special room for this purpose. Indoor fire hydrants are placed in visible and easily accessible places in case of fire, in the hallways, near the entrance to the rooms and inside them. The pipes are linked in a ring, provided with shut-off valves, sealed in the "normally open" position; the installation is provided with a 100 mm pipe, with a shut-off valve, two direction flaps and two connections with Storz coupling with a passage diameter of 65 mm, located on the external wall of the building. These are marked with indicators at a height of 1.40 m from the level of the sidewalk of the building, connected to the main pipe of the water supply network. The fire hydrant valve, together with the service equipment formed of a hose, the drum with its support and the water discharge devices mounted in a special box, located in a niche or hole in the masonry, at a height of 0.80 m - 1.50 m from the floor.

The Library is also equipped with:

- **fire alarm systems (s**moke detection system which can provide early warning of a developing fire, prior to the activation of a sprinkler system);
- **portable extinguishing systems (**hydrant systems and portable fire extinguishers available in a suitable number);
- **automatic extinguishing systems** (recommended for small repositories or rooms not normally occupied by people).

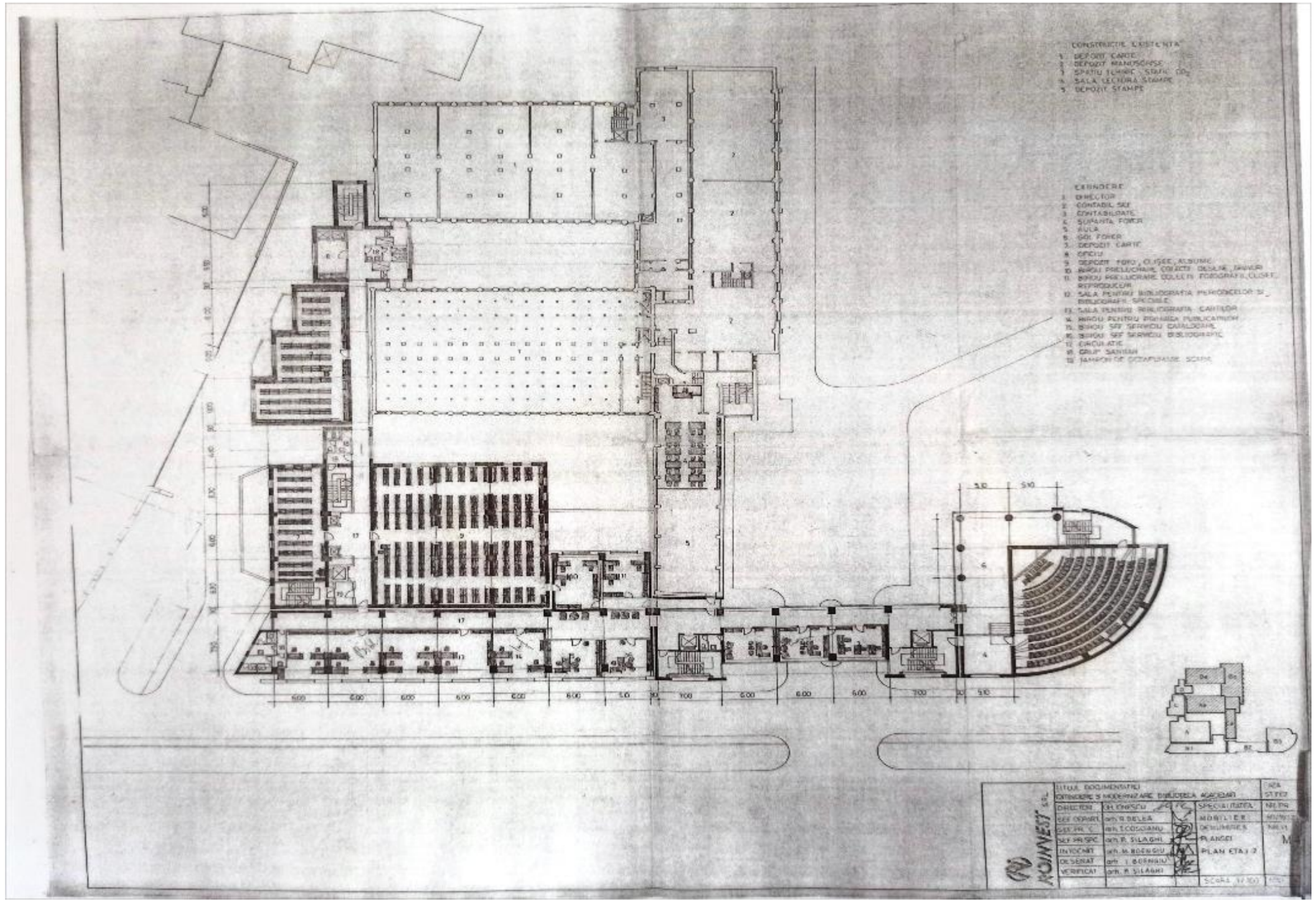
- BAR buildings and surroundings should be kept tidy.
- Building interiors and exteriors areas are monitored by CCTV arround the clock.
- Repositores are partitioned and provided with doors and windows of high security.
- Entry/Exit points and routes are kept separate all times.
- The equipment is stored in special, visibly marked safety boxes.
- BAR has taken specific measures, like the use of vaults, for the security of rare/valuable heritage material.

Evacuation plans with coloured diagrams, charts and clear signage indicating the safest exit routes displayed on each level and segment of hallways, on doors and floors in the building to facilitate an expedient evacuation in case of workplace emergency. They are designed also to inform occupants where the fire equipment is installed. Hydrants, sprinklers and portable extinguishers are visibly marked to be easily grasped in the event of an unexpected need to be used. They are placed at the recommended distance on each level, throughout the whole complex of buildings.

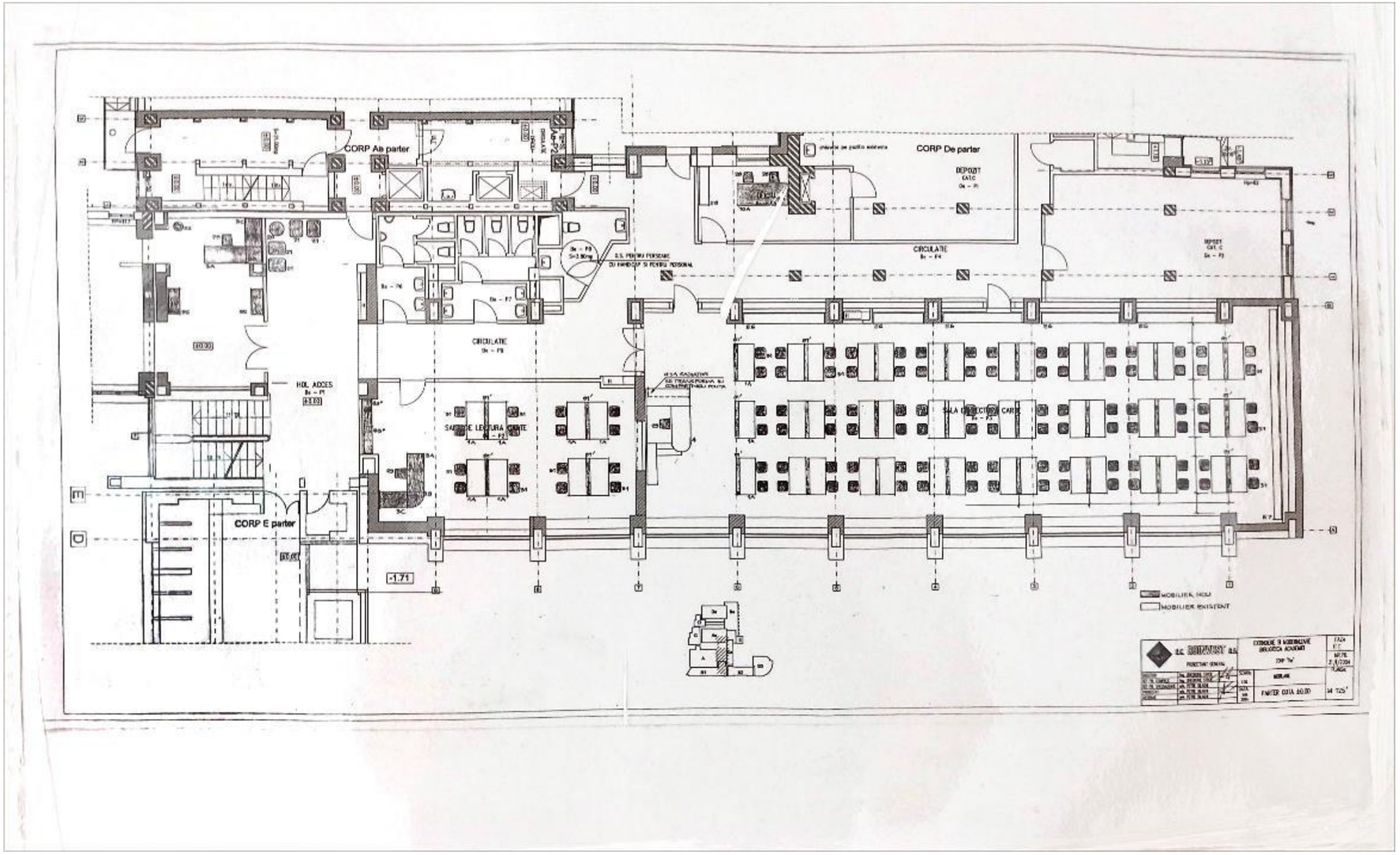
EVACUATION PLAN – GROUND FLOOR (Reading rooms)

EVACUATION PLAN – FIRST FLOOR (Department of Manuscripts and Rare Books, offices and reading room)

ROMANIAN ACADEMY LIBRARY – GENERAL PLAN OF THE COMPLEX OF BILDINGS AND SURROUNDINGS



ROMANIAN ACADEMY LIBRARY – GROUNDFLOOR PLAN WITH THE MAIN READING ROOM



HYDRANTS, PORTABLE FIRE EXTINGUISHERS AND SMOKE ALARMS

FIRE ALARMS

EXIT INDICATORS (ON WALLS, DOORS AND FLOORS)

Co-funded by the
Erasmus+ Programme
of the European Union

3. EMERGENCY EQUIPMENT.

Identify and list equipment you might need in an emergency. List of materials needed in an emergency

Emergency toolkit: ladders, tools (wrenches, hammer, screwdrivers, pincers, pliers, tape, protection equipment - gloves, masks etc.)

Emergency checklist:
Fire detectors (smoke and heat detectors)
Fire Alarm system
Automatic sprinkler system
Fire Emergency Evacuation Broadcast System
Evacuation indicators (routes)
Mechanical Ventilation Smoke-Exhaust
Fire extinguishers
Water supplies
Emergency lighting
Trolleys
Anti-inflammable materials

Disaster kit
Tools: ladders, trolleys, hammers, screwdrivers, wrenches, tapes, scissors
Office consumables: pencils, clips
Basic salvage equipment: blotting paper, fans, dryers, vacuums
Other items: masks, gloves, towels, bags, rope, strings
Personal protective equipment: gas masks

4. COLLECTIONS - INVENTORY OF HOLDINGS, DOCUMENTATION, STORAGE ARRANGEMENTS

As for the library holdings, the Romanian Academy Library shelters circa 14 million bibliographic units, among which over 2.100.000 monographies and 5.300.000 serials in its general repositories, but also preserved in its special collections of manuscripts, rare books, historical documents, archives, engravings, coins and medals, scores, maps departments.

Distribution of the Library Collections and Reading Rooms
Floor distribution
10th -1 st Floor - publication repository
Zone A: Reading Rooms - ground floor, 1st floor (2), second floor (2), 3rd floor, 4th floor (2)
Zone C: Director's Office, Secretary Office
1st Floor
Zone C: Information Consultancy, Acquisition & Processing
ground floor
Each department holdings collections keeps inventory forms, like inventory registers and others, with a digital variant for most items, and keeps a list of priorities of documents to be recovered in case of fire emergency.
Their storage is in repository compartments, on adjustable metal shelving units, with standard distance between them.
After the stages of risk identification, analysis and assessment, all risks to be managed are included in the Risk Register of each department at the first level of management, according to the model in the Annex (see slide 7).
The Risk Register elaborated at the level of the departments at the first level of management is approved by the respective manager.

Elaboration of the Risk Register at the BAR level:
- Based on the Risk Registers received from CPNC, STCM prepares the Risk Register at the BAR level, retaining the risks located above the tolerance limit from the risk profile;
- Subsequently, the Technical Secretariat sends the Risk Register at the BAR level to the CM President for approval.

List of priority items to be recovered in a first aid regime – mandatory for each department

Object type	Inventory Number	Description	Priority	Floor	Room and position	First aid	Emergency storage destination
Manuscript	Rom Ms			3	Mss Rep., 1st shelving unit	dried	

5. DEALING WITH SENSITIVE MATERIALS

Library items are sensitive to the environment – not only temperature, relative humidity, and air pollution but also oxidising substances found from emissions in building materials, wall paints, wooden furnishing, cardboard, wall paints, and even the enclosures used to protect them. While the conservation of photographic material should be left to specialists, library staff can take certain precautions to safeguard the welfare of their collections.

Horizontal storage of items is usually preferable to vertical storage, since it provides overall support and avoids mechanical damage, such as bending.
Vertical storage, however, may facilitate access to the collections and decrease handling.

In our Library, mixing documents of different sizes can cause abrasion and breakage and can increase the risk of misplacing smaller items.
Librarians should wear cotton gloves, handle the edges only, and work in a clean, well-lit, and well-ventilated area with enough room for handling documents.
Eating, drinking, or smoking should not be allowed in the processing/examination area.

To reduce damage, special care must be given to the storage of oversize documents on cardboard and parchment. Where possible, items of similar size should be stored together. Embrittlement of the support can endanger the cardboard which may break at the storage place or during handling. The most vulnerable material must be enclosed in special cases and handled with care.

Different types of photographic material, such as glass and film negatives, paper contact prints, and colour transparencies, should be stored separately. Horizontal storage of photographs is also preferable to vertical storage.
With vertical storage, photographs should be placed in acid-free file folders or envelopes that are themselves housed in hanging file folders or document storage boxes.

Passing documents from controlled temperature in repositories to room temperature (reading rooms or others) represents an other potential risk for all materials as they need an adaptation time before being consulted, due to a big difference of temperature in a very short span of time.

Overcrowding should be avoided. The use of hanging file folders will prevent items from sliding down under each other and will facilitate their handling.

Boxes containing material should be housed on metal shelves.

Boxes should not be overfilled.

Library collections are extremely susceptible to damage from careless handling; staff and users should therefore:

- provide copies rather than originals whenever possible;
- wear clean, lint-free cotton gloves or use very clean hands when handling any kind of documents; never touch the emulsion side of any photographic image (e.g., print, negative, transparency, lantern slide, etc.);
- prepare a clean work surface;
- use two hands to hold a document or support it with a piece of stiff cardboard;
- not use adhesive tapes, staples, pins, paper clips, or rubber bands on documents;
- not place hard objects on library items;
- consult a conservator on issues of storage and handling.

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Normatives of the Romanian Academy Library

• BAR Organization and Operation Regulations
• Decision no. 74/21.07.2022 updating the composition and duties of the SCIM Monitoring Commission at the BAR level
• Regulation on the Organization and Operation of the Monitoring Commission
• Procedure PS-01 regarding the development of procedures in BAR
• The System Procedure for Risk Management at the Romanian Academy Library (PS-02)
• Risk Management Methodology – it is recommended to go through the SGG Methodology available online, as a useful tool in approaching risk management

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