

APPROVED pursuant to clause 15 of the
university's fire safety rules.

Andres Liinat

Director of Administration

” ___ ” _____ 2013

Action plan in case of a fire

Nooruse 1, Tartu

Tartu 2013

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1. Introduction

The objective of this action plan in case of a fire is to regulate the conduct of employees in case of a fire with the aim to ensure the safety of the people in the building, their safe movement to the assembly point, and on-site cooperation with the head of the rescue team.

The plan is updated and amended in the following cases:

- changes in the factual or legal bases on which the plan was devised to ensure compliance with them;
- after fire training drill, if the latter indicates that the current plan does not comply with the intended purpose;
- after a fire, if the organisation continues its operation and there are indications that the current plan does not comply with the intended purpose;
- upon receiving a precept from the state fire supervision official.

Before starting work, all employees must be instructed on fire safety according to the procedure established by the rector, incl. get acquainted with this plan and confirm it with their signature. All employees in the building must be notified of changes to the evacuation plan and the action plan in case of a fire.

2. Definitions

Fire – an uncontrolled combustion process outside the designated places for a fire, characterised by the emission of heat and smoke and involving proprietary or other type of damage.

Action plan in case of a fire ('plan') – guidelines for the employees of the university that describe the procedures in case of an evacuation and fire, taking into account the specifics of the building in relation to fire safety. The plan comprises the activity plan in case of an evacuation and fire ('activity plan') and floor plans.

Activity plan – part of the plan aiming to provide the employees with an overview of the specifics of the building in relation to fire safety and to present operational guidelines in case of an evacuation and fire.

Floor plan – drawing of a floor of the building or an evacuation area, providing a graphic description of the location of the corridors, stairwells, rooms, doorways, balconies, evacuation paths and exits, emergency exits, fire alarm buttons, fire hose system cabinets and extinguishers and other designations wherever necessary.

Evacuation – compulsory exiting of people residing in the building (evacuating) or them being brought out by force (being evacuated) to a safe place, as organised and managed by employees until rescue workers arrive and, if necessary, afterwards.

Evacuation path – freely passable and safe path in the building which is marked with evacuation symbols and leads to the evacuation exit.

Evacuation exit – freely passable keyless doorway located at the end of an evacuation path and marked with evacuation symbols.

Emergency exit – an exit which does not comply with the requirements set for an evacuation exit, but which makes it possible to evacuate or organise the evacuation of people in case of a fire or other accident. Window or doorway in a wall which can be opened or broken when evacuation paths or evacuation exits are not passable.

Head count – the verification of the presence of employees, students and guests at an assembly point.

3. Description of data influencing conduct in case of an evacuation or a fire

Manner and purpose of use of the building	Manner IV: assembly building Purpose: university building
Number of floors, total area and areas of the floors	Seven-storey building with a basement total area: 9,098 m ² basement area: 1,271 m ² area of the 1st floor 1,549 m ² area of the 2nd floor: 1,124 m ² area of the 3rd floor: 1,128 m ² area of the 4th floor: 1,123 m ² area of the 5th floor: 1,129 m ² area of the 6th floor: 881 m ² area of the 7th floor: 893 m ²
Times of using the building	The building is open on business days from 7:30 to 18:00. At other times, the building can be accessed with an access card or by calling the university's in-house security service on (737)5111.
Number of people using the building	~240 employees in the daytime on business days, ~5 employees at night on business days, ~5 on weekends and holidays. Guests, incl. students, between September and June ~160, between July and August ~40.
Security workers	The building has a technical security system.
Number of people using the building who are not able to evacuate by themselves	In general persons who are not able to evacuate by themselves are not present in the building.
Evacuation paths and exits, emergency exits	The evacuation solution within the building has been provided in the annex to this plan (evacuation floor plans). Evacuation paths marked with standard evacuation symbols lead either directly outside or to fire-proof stairwells. The building is fitted with safety lighting which ensures that evacuation paths are lighted. All doors on evacuation paths have the required markings and can be opened in the direction of the evacuation with thumb-turn locks.
Evacuation within the building	There are three evacuation exits in the basement and four evacuation exits on the first floor leading directly outside. On the other floors there are three evacuation stairwells exiting to the first floor level. All evacuation exits have been fitted with safety lighting, marked with evacuation symbols and can be opened from the inside without a key. To prevent the spread of fire and smoke, to ensure evacuation, to simplify rescue work and to limit proprietary damage, the building has been divided into fire compartments. The spread of fire and

	<p>smoke between fire compartments is prevented with fire doors.</p> <p>In case of a fire, people must use the nearest evacuation stairway to move to the assembly point outside the building.</p>
<p>Primary firefighting equipment and fire safety installations in the building</p>	<p>Extinguishers – there are 6 kg powder extinguishers and CO₂ extinguishers in the building. The location of the extinguishers is indicated on the evacuation plans. User manual is located on the extinguisher’s inscription.</p> <p>Fire hose system – located in the designated cabinets on the walls of the building, user manuals located on the inside of the cabinet doors. The location of the cabinets is indicated on the evacuation plans.</p> <p>Evacuation lighting – evacuation paths indicated on the evacuation plans are fully fitted with evacuation lighting (operational time one hour).</p> <p>Lightning protection system – metal structures and devices on the roof have been connected with lightning protection grounding and the building’s central grounding system.</p> <p>Automatic fire detection and alarm system (AFDA) – the whole building is covered with an addressed AFDA, meaning that the central AFDA device shows the precise location of the sensor giving a fire or error signal. All rooms are fitted with optical smoke detectors. Manual call points are located by the evacuation paths and their locations are indicated on the evacuation floor plans and the AFDA location plan. The central AFDA device, its location plans and user manual are located in the maintenance room on the 1st floor (room 101).</p>
<p>First aid supplies</p>	<p>First aid supplies are located:</p> <ul style="list-style-type: none"> • on the 1st floor: in the cloakroom and the kitchen area in the right wing; • on the 3rd floor: in rooms 309, 324–326, the kitchen area and both ends of the corridor; • on the 4th floor: in room 431 and both ends of the corridor; • on the 5th floor: in room 527 and both ends of the corridor; • on the 6th floor: in rooms 605 and 608a.
<p>Other information on the building</p>	<p>The building has a fire resistance class of TP-1 – all load-bearing structures are constructed from non-flammable materials. Fire compartments with a fire resistance of 60 minutes comprise the floors and evacuation stairwells. The walls and floors in the rooms and evacuation paths are made of non-flammable materials.</p>

4. Description of fire hazard in the building

No activities posing a fire or explosion hazard are conducted in the building. The amount of combustible materials in the rooms is usually small. Fire compartments limit the spread of fire.

Potential fire hazards in the building	Operations to prevent fire hazard
Violation of smoking rules	Smoking inside the Nooruse 1 building is prohibited; smoking on the premises of the registered immovable is permitted in places with the respective designation.
Failure of electrical equipment	To avoid failures in the electrical equipment, the operation of electrical equipment is checked in the building according to the requirements of the person in control of an electrical installation. An additional technical inspection of all electrical installations in the building is conducted every five years. After using a room, the users must turn off all electrical equipment which is not supposed to run constantly.
Arson	Each person working or studying at the university who discovers evidence of a possible fire (flames, burning smell, smoke, crackling, verbal cues) must investigate the matter, trying to discover the reason behind the evidence.

5. Guidelines for reporting a fire

Potential ways of discovering a fire	Operations
In case of an AFDA alert	<p>As much as possible, each employee must verify an AFDA alert. To do that, they silence the alarm and immediately go to the sensor that transmitted the alarm. Upon inspection, before entering a room, they must feel the door handle with the back of their hand to make sure that it is not warm (possibility of a fire behind the door). If the handle is warm, it is not permitted to enter the room.</p> <p>If there is a fire, the employee activates the AFDA immediately from a manual call point, informs people close to the hazard zone, calls the emergency number 112 and the university's in-house security service on (737)5111.</p> <p>In case of a false alarm, the AFDA can be reinstated only after verifying the alarm. The event is logged and in case of an error in the AFDA, the maintenance company is notified. In case of a false alarm, the AFDA is reinstated by the provider of the technical security service.</p> <p>In case of an AFDA fire alarm, each person working or studying in the building must look around in their room to establish the potential cause of the alarm. A diode lights up on the fire alarm sensor or manual call point which transmitted the alert. If the alarm is caused by a fire alarm button being pressed for no reason, steam, dust, smoke or any other reason besides a fire, then the alarm must be silenced immediately from the central AFDA device and the reason for the false alarm eliminated as soon as possible.</p>
Discovering a fire before the AFDA gives the alarm	<p>Each person working or studying in the building who discovers evidence of a possible fire (flames, burning smell, smoke, crackling, verbal cues) must investigate the matter, trying to discover the reason behind the evidence.</p> <p>The person discovering the fire must immediately press the manual AFDA call point (red box on the wall). Then the AFDA alarm is engaged immediately in the whole building, which is an evacuation signal for the users of the building.</p> <p>The person discovering the fire informs people near the hazard zone, calls the emergency number 112 and the university in-house security service on (737)5111 and proceeds according to the obligations arising from their position.</p>
If the AFDA does not give the alarm (<i>e.g. AFDA failure</i>)	<p>The person who discovers the fire loudly notifies all people who are present in the building, calls the emergency number 112 and the university in-house security service on (737)5111 and proceeds according to the obligations arising from their position.</p> <p>The loud notification of a fire must be relayed by all employees who</p>

	hear such notification.
Reporting the fire on the emergency number 112	<p>In case of a fire the person who discovers the fire must report it to the emergency number 112 and:</p> <ul style="list-style-type: none"> - describe what has happened; - report the location of the incident as precisely as possible; - say whether there are people injured; - clearly state their name and phone number; - try to remain calm, give short and precise answers to any questions; - follow the guidelines provided by the alarm centre; - not hang up without permission to do so; - not turn off the phone after transmitting the message as additional information may be required; - if the situation changes significantly before the rescue workers arrive, inform the alarm centre.

6. Guidelines for carrying out the evacuation

Order to start evacuation	<p>Any of the following is considered an order to start general evacuation: the AFDA alarm going off for the second time, AFDA working in alarm mode for more than one minute, or a verbal order to start evacuation.</p> <p>Upon receiving the order to start evacuation, each employee must start evacuating immediately and, if possible, help others evacuate. When leaving the rooms, the employee switches off any devices not intended for unsupervised operation as much as possible.</p> <p>The designated evacuation paths must be followed when evacuating the building.</p>
Evacuation assembly point	<p>The evacuation assembly point is the place where people gather after evacuation and where they are counted. The assembly point is located in the car park behind Nooruse 1, by the chemistry building.</p> <p>Employees must make sure that students and guests arrive to the assembly point. No one may leave before receiving the respective order.</p>
Head count	<p>Head count is carried out at the assembly point as soon as possible before the arrival of the rescue team. Head count takes place by each structural unit. Head count is carried out by the person in the highest position from among those present (if equivalent, the one with the longest service). The results of the head count are collected by the person in the highest position or a person appointed by them ('representative'), whose task will be to report the information to the head of the rescue workers.</p> <p>The people who conducted the head count jointly decide on how to proceed with resolving the situation.</p>

7. Operational guidelines in case of a fire

7.1 Management of operations in case of a fire

Employees	<ul style="list-style-type: none">- Upon discovering a fire in its initial stage, attempt to extinguish it by using the primary firefighting equipment and if possible, remove combustible materials from the proximity of the fire.- If it is not possible to extinguish the fire, leave the rooms and switch off any devices not meant for unsupervised operation as much as possible.- If possible, upon leaving the room with the fire, close the door behind them so that the fire would not receive more oxygen for combustion.- Report the fire according to the guidelines for reporting a fire.- Exit the building using the nearest safe path, helping others (incl. students and guests) to evacuate whenever possible. Both doors as well as windows can be used for exiting the building.- Ensure that everyone who has (been) evacuated from the building (incl. students and guests) stay at the assembly point until further orders are received.- Follow the orders of the representative and the person conducting the head count (within reason, not putting one's life in danger).
Persons conducting the head count	<ul style="list-style-type: none">- Count the evacuees in their responsibility area.- Report the results of the head count to the representative and, if someone is still in the building, report the information on their potential location in the building.- After the head count, organise the movement of the employees, students and guests to a safe place.
Representative	<ul style="list-style-type: none">- Ensures that the fire has been reported to the emergency number 112 and the in-house security service on (737)5111. If it has not, does it immediately.- Gathers information from persons conducting the head count of people who have evacuated the building and, if necessary, organises the rescue of people from outside the building (opening windows and doors for direct evacuation).- When the rescue workers arrive, gives information to the head of the rescue workers (who is wearing the vest of the head of the rescue workers) and assists them in all issues.

7.2 Using the primary firefighting equipment and fire safety installations

Primary firefighting equipment can be used in the initial stage of a fire. Extinguishing a fire whilst putting one's own life in danger is not permitted.

Each extinguisher has a user manual on them which the employees must get acquainted with. The user manual along with guidelines on what kind of materials can be extinguished with each extinguisher is located on the extinguisher's inscription.

Using a powder extinguisher	<ul style="list-style-type: none"> - Grab the extinguisher hose as close to the end as possible (not near the extinguisher body), as this way you have more control over the direction of the spray. Extinguish at a distance of 3–5 metres from the fire and remember that the operational life of the extinguisher does not exceed 20 seconds. - When using the extinguisher outdoors, stand upwind from the fire. - When extinguishing solid objects or materials, direct the extinguisher agent to the area with the most intensive burning with “sweeping” movements, covering the surface of the object with the extinguishing agent. - When extinguishing liquids, direct the extinguishing agent at an angle to the surface of the liquid, starting from the sides and gradually covering the whole surface with the extinguishing agent.
Using a carbon dioxide extinguisher	<ul style="list-style-type: none"> - When using a carbon dioxide extinguisher, keep it as vertical as possible so as not to obstruct the carbon dioxide exiting the container normally. Extinguish as close to the fire as possible. - To avoid frost burns, never grab the extinguisher's outlet funnel with a bare hand or direct the flow to any uncovered body part of a person. - If a carbon dioxide extinguisher has been used indoors, everyone must leave the room and it must be aired. - Avoid steam burns when extinguishing in a small enclosed space.
Using the fire hose system	<ul style="list-style-type: none"> - Open the hose cabinet. - Unroll the hose completely. - Push the button located in the hose cabinet. - Open the fire water tap in the cabinet. - Move to the fire with the spray head. - Open the spray head (the shape of the spray can be modified by turning the end of the spray head left and right). - Aim the water spray at the fire and extinguish the fire. - Before extinguishing electrical equipment make sure that the device has been disconnected from the power supply!

7.3. Limiting the spread of fire

Fire compartments limit the spread of fire. Fire compartments with a fire resistance of 60 minutes comprise the floors and evacuation stairwells. The walls and floors in the rooms and evacuation paths are made of non-flammable materials.

In case of a fire, combustible materials should be removed from the fire as much as possible to prevent the fire from spreading. If it is not possible to extinguish the fire, the door to the fire must be closed so that the fire would not receive the oxygen needed to sustain combustion. When moving away from the fire, all windows and doors should be closed whenever possible to prevent the fire and smoke from spreading.

7.4 Ensuring the safety of technical devices or processes

When the AFDA alarm is engaged, ventilation is turned off and lifts will stop on the first floor with their doors open.

When leaving rooms, employee must switch off any devices not meant for unsupervised operation as much as possible.

7.5 Evacuation

Conduct upon evacuation	<ul style="list-style-type: none">- When evacuating from a smoke-filled room, keep close to the floor (on your hands and knees), as the concentration of toxic combustion residue in the air is lower there.- Stay calm while moving towards the exit.- Move in single file in the corridors. When moving in a dark corridor, keep one hand in contact with the wall and move slowly.- In case of a hazard on the evacuation path (smoke zone, lack of oxygen resulting from the fire), change the direction of movement to use another (alternative) evacuation path or emergency exit for evacuation.- Report any hazards on the evacuation path to the representative immediately after exiting the building.- Emergency exits are used when the evacuation paths cannot be used.
Limiting the spread of fire	<ul style="list-style-type: none">- Upon leaving the room, close any doors and windows, turn off the ventilation, climate control device, etc.- Everyone moving along the evacuation paths during evacuation must close doors behind them; when moving in single file, the last one closes the doors.- After the evacuation, entrance doors to the building are closed without locking them.

<p>If evacuating the building is not possible due to smoke and high temperatures</p>	<ul style="list-style-type: none"> - Stay in your room or enter the closest room, closing the door behind you. - If possible, soak towels or clothes in water or other non-flammable liquid and seal the doorway to reduce the amount of smoke and toxic gases entering the room. - If you have a phone, immediately report your location to the emergency number 112. - Open the windows in the room, make yourself seen, wave your hands and shout for help.
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8. Guidelines for cooperation with the rescue team

Usually the rescue team will arrive at the site ca 10 minutes after the call is made. By this time it is important to complete the evacuation and the subsequent head count.

The representative (the person who conducted the head count and has the highest position, or another person appointed by them) contacts the rescue team upon their arrival and informs them of the situation on the site. The representative must be constantly available for the head of the rescue workers for any additional information on the site.

<p>The rescue team is met beside the assembly point on the access road</p>	<p>The head of the rescue workers is informed of the following:</p> <ul style="list-style-type: none"> - what is burning and to what extent; the place where the fire started; - whether there are still people in the building and their presumed location; - which is the fastest way to the place of the fire (laminated location and evacuation maps); - other potential hazards on the site (gas cylinders, chemicals, etc.); - location of the main electrical switchboard; - brief overview of the previous activities since the fire started; - location of property which needs to be rescued.
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9. Getting acquainted with the action plan in case of a fire

The action plan in case of a fire is introduced to all employees against their signature upon starting their work. The plan is introduced to existing employees against signature after the plan is approved by the director of administration.

Also, once every year, a fire training drill is organised. All employees of the university are obliged to participate in fire training drills. The objective of conducting the fire training drill is to ensure well-oriented behaviour in a potentially dangerous situation and to manage the related risks.

A summary of each fire training drill is retained for at least 5 years.

Annex 1 Information necessary for informing the rescue team

- The reception area of the rescue team is in front of the building and all entrances can be used for accessing the building.
- The main electrical supply switchboard of the building is located in the basement in room 031.
- The fire hose system is not centralised, taps can be opened from the hose system cabinets.
- The central AFDA device is located in the maintenance room 101 on the first floor.
- The fire hydrant is located at Nooruse street, ca 15 metres from the building.
- Ventilation switches are located on the seventh floor, in ventilation chambers 703 and 719.
- Safety switches of the lifts are located on the seventh floor beside the lift (only accessible to the maintenance company).
- Other potential hazards on the site.

There are cylinders of different gases in the building:

- **Propane** – in rooms 309, 409–410, 412, 413a, 413b, 431, 508, 510, 512. Extremely flammable gas. Exposure to fire can cause the cylinders to explode.
- **Nitrogen** – in rooms 304, 324, 414–415, 430, in the corridor of the fifth floor (left wing). Non-flammable and non-toxic gas. Exposure to fire can cause the cylinders to explode.
- **Carbon dioxide** – rooms 303–305, in the corridor on the fourth floor (right wing), room 512, in the corridor of the fifth floor (left wing). Non-flammable and non-toxic gas. Exposure to fire can cause the cylinders to explode. Exposure to the liquid can result in a burn/freezer burn.
- **Liquid nitrogen** container (200 litres) – room 532. Non-flammable and non-toxic gas. Exposure to fire can cause the cylinders to explode. Contains frozen gas; exposure may result in freeze burns or damage.
- **Argon** – corridor of the third floor (left wing), corridor of the fifth floor (left wing). Non-flammable and non-toxic gas. Exposure to fire can cause the cylinders to explode.
- **Helium** – corridor of the fifth floor (left wing) Non-flammable and non-toxic gas. Exposure to fire can cause the cylinders to explode.
- **Synthetic air** – the corridor of the fifth floor (left wing). Non-flammable and non-toxic gas, but contributes to combustion. Exposure to fire can cause the cylinders to explode.

Annex 2 General description of the building

Ventilation. The ventilation system has an automatic inflow and exhaust system. After receiving a fire alarm, the AFDA central device automatically shuts off the ventilation to prevent the fire from spreading through the ventilation system.

Heating. The building has central heating, using water as the heat carrier.

Safety lighting. Evacuation paths and exits are marked with safety lighting. Safety lighting is composed of evacuation lighting. The building's safety lighting makes it possible for people to leave the place of threat in case the general lighting has been damaged and to end or suspend any dangerous processes before leaving or to conduct rescue work. The exits, corridors and staircases have been fitted with evacuation lights. In case of a power outage, the safety lighting will remain on for at least one hour.

Automatic fire detection and alarm system (AFDA). The addressed automatic fire detection and alarm system fitted in the building ensures that a fire is detected quickly. The system makes it possible to locate the fire by the position of each sensor and to get information on the spread of the fire. An alert is displayed on the central device panel. The alarm will sound automatically after the sensor is engaged. AFDA is also engaged with failures affecting its working mode. The location plans, user manuals and maintenance logs are found at the central device. The central AFDA device for the building is located in the maintenance room 101 on the first floor.

Upon the discovery of a fire, either by a sensor or receiving a signal from the fire alert button, the AFDA does the following:

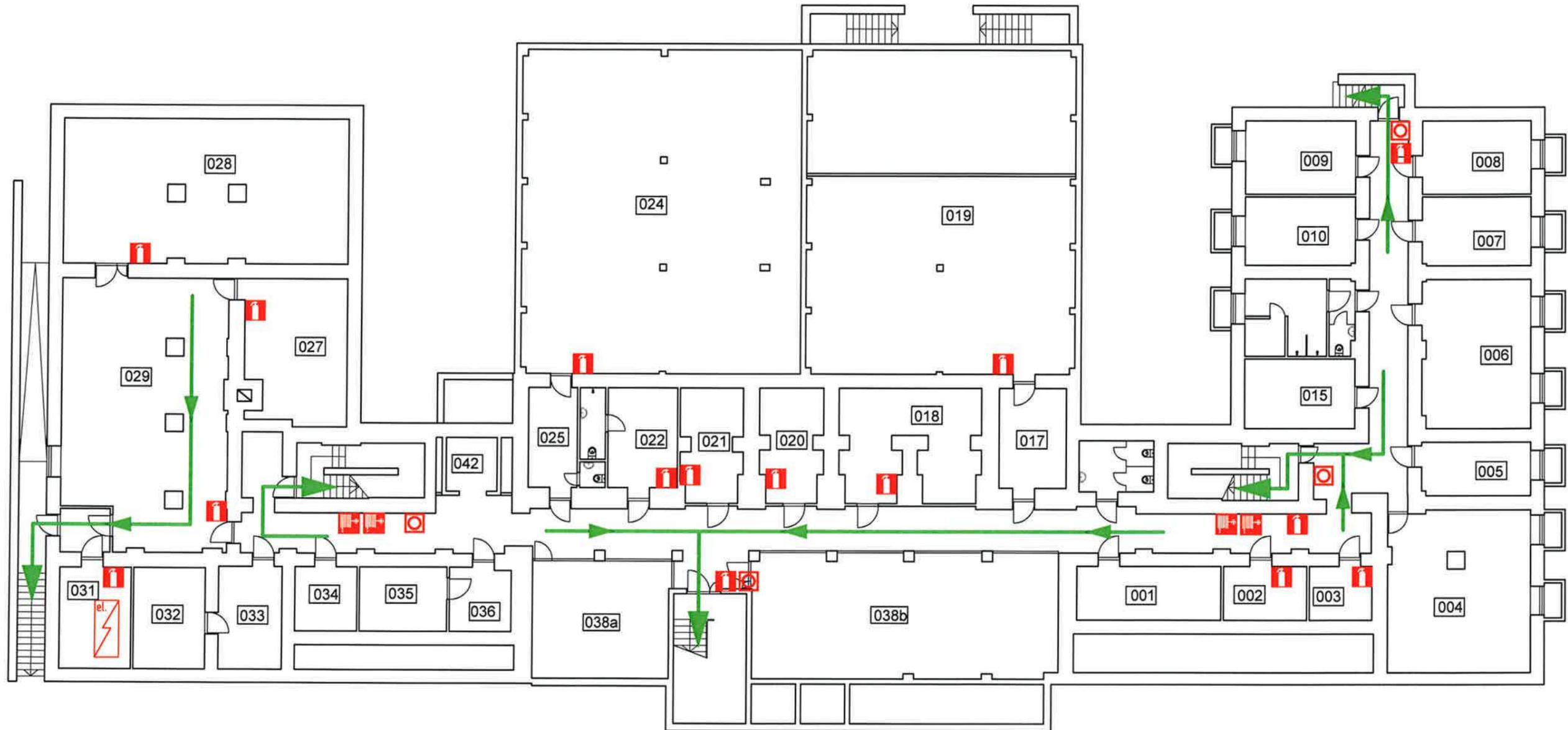
- displays the fire alert on the central AFDA device, indicating the location of the fire;
- transmits alarm with alarm bells;
- transmits the alert to the UT in-house security service;
- transmits the alert to the security company;
- shuts off ventilation;
- has the lifts move to the first floor and stop.

Smoke clearance. The clearance of smoke and heat is done by means of natural draft.

Evacuation plan

Nooruse 1, Tartu

Tartu University, 0 floor



Legends:



Fire alarm button



Main electrical switchboard



Extinguisher



Fire hose system cabinet

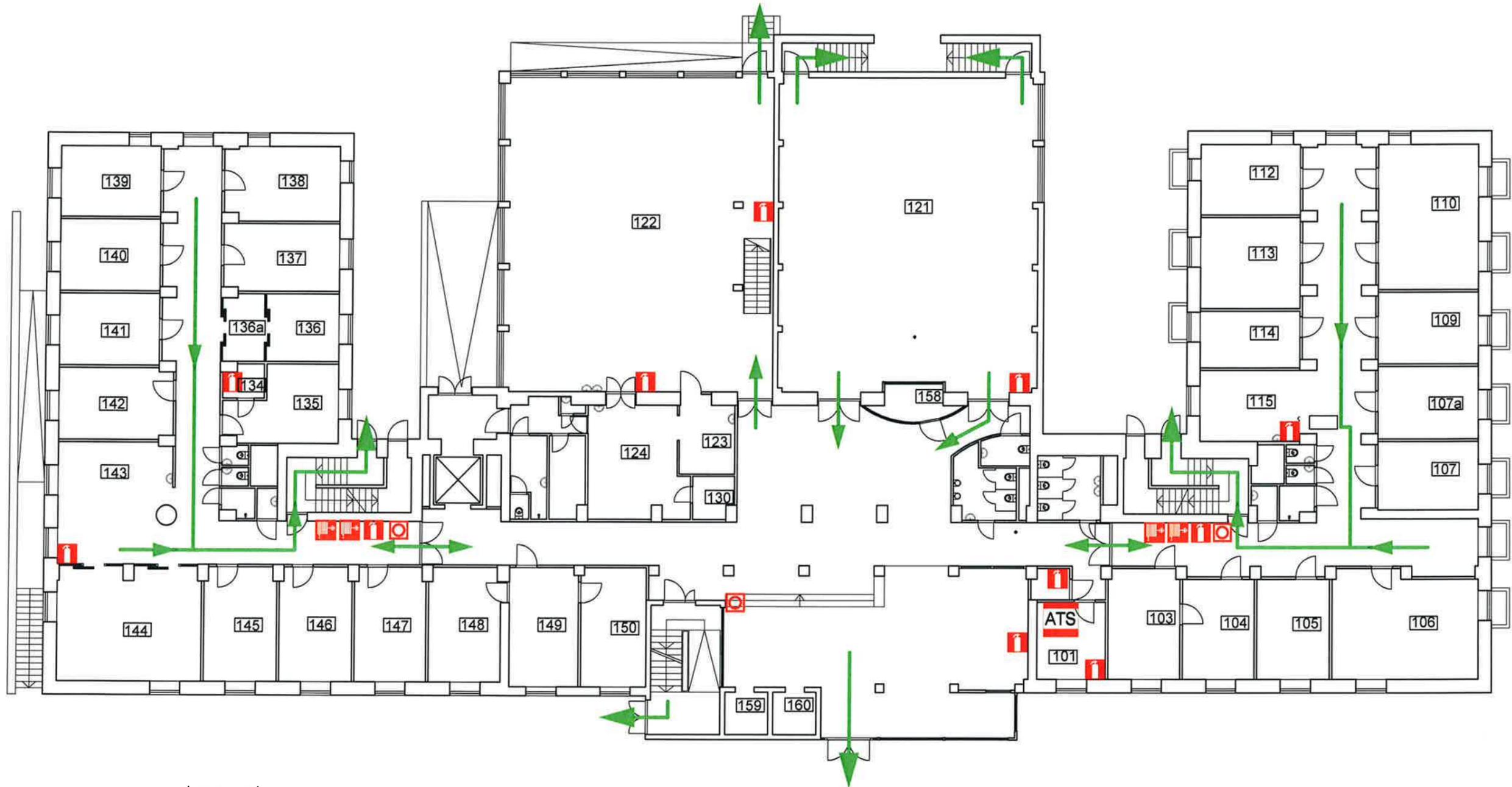


Evacuation path

Evacuation plan

Nooruse 1, Tartu

Tartu University, 1 floor



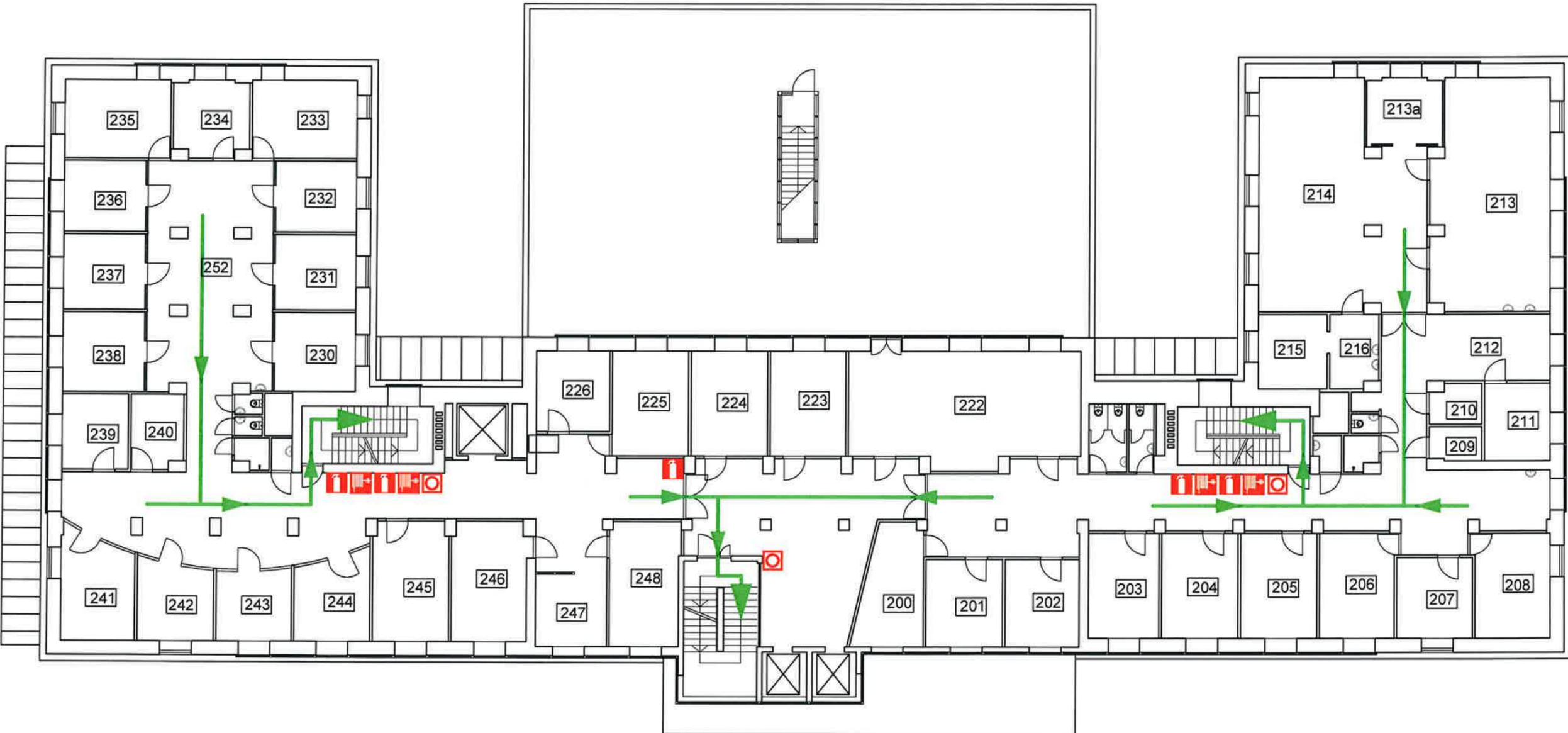
Legends:

- | | | |
|---|---|---|
|  Fire alarm button |  AFDA central device | |
|  Extinguisher |  Fire hose system cabinet |  Evacuation path |

Evacuation plan

Nooruse 1, Tartu

Tartu University, 2 floor



Legends:

-  Fire alarm button
-  Extinguisher
-  Fire hose system cabinet
-  Evacuation path

Evacuation plan

Nooruse 1, Tartu

Tartu University, 3 floor



Legends:



Fire alarm button



Extinguisher



Fire hose system cabinet

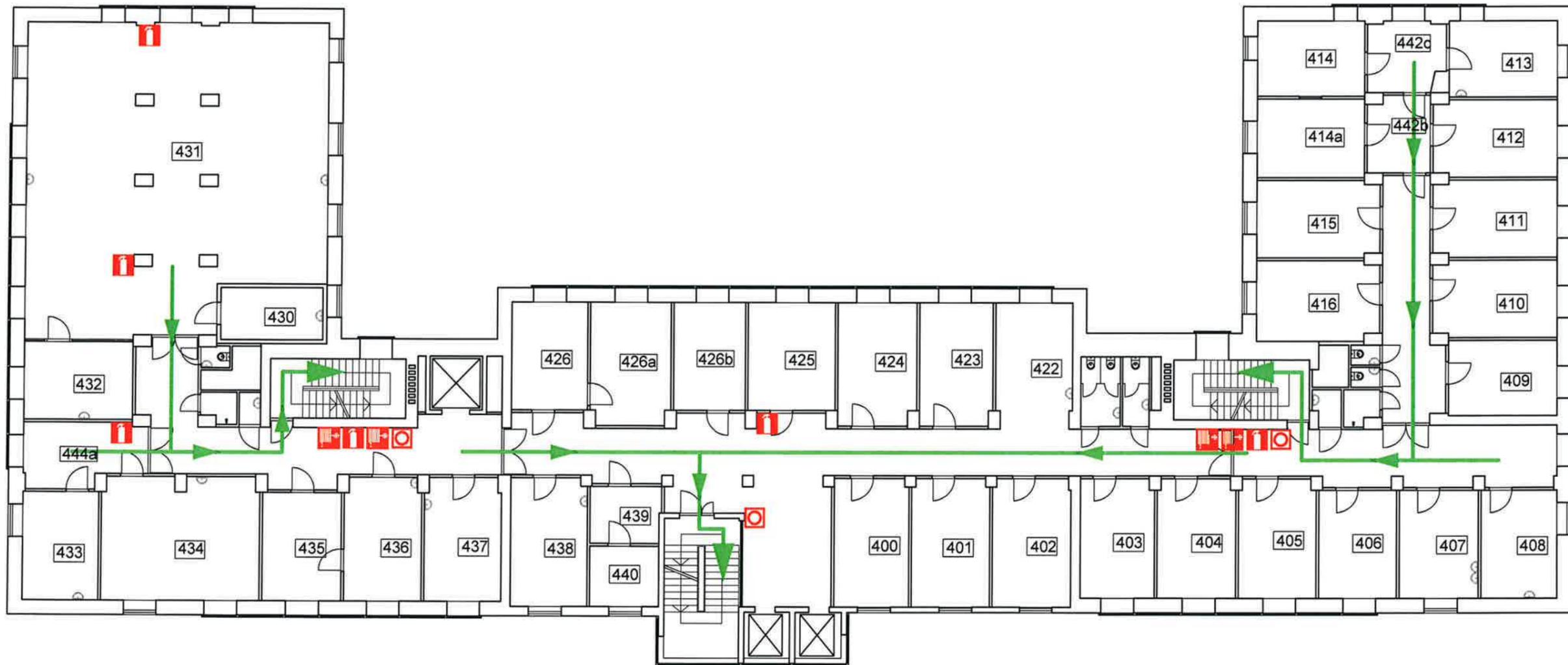


Evacuation path

Evacuation plan

Nooruse 1, Tartu

Tartu University, 4 floor



Legends:



Fire alarm button



Extinguisher



Fire hose system cabinet

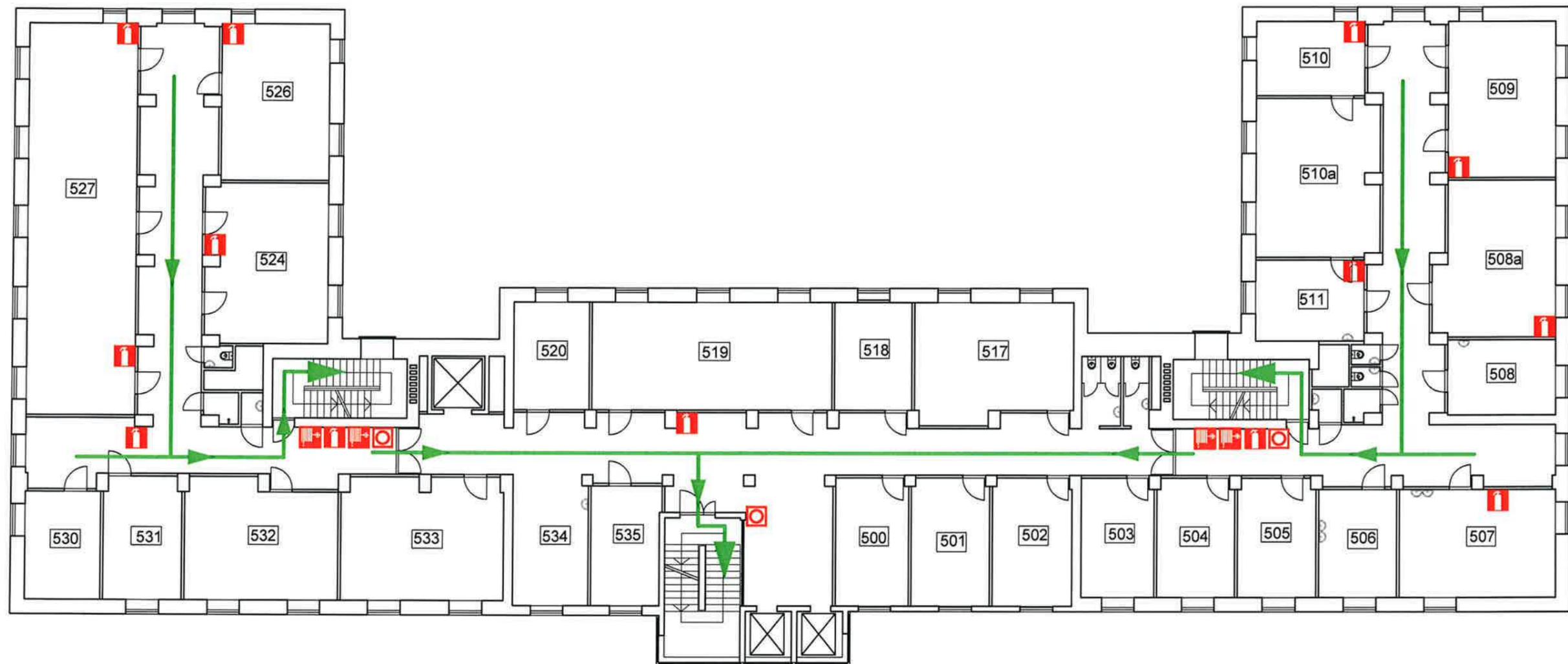


Evacuation path

Evacuation plan

Nooruse 1, Tartu

Tartu University, 5 floor



Legends:



Fire alarm button



Extinguisher



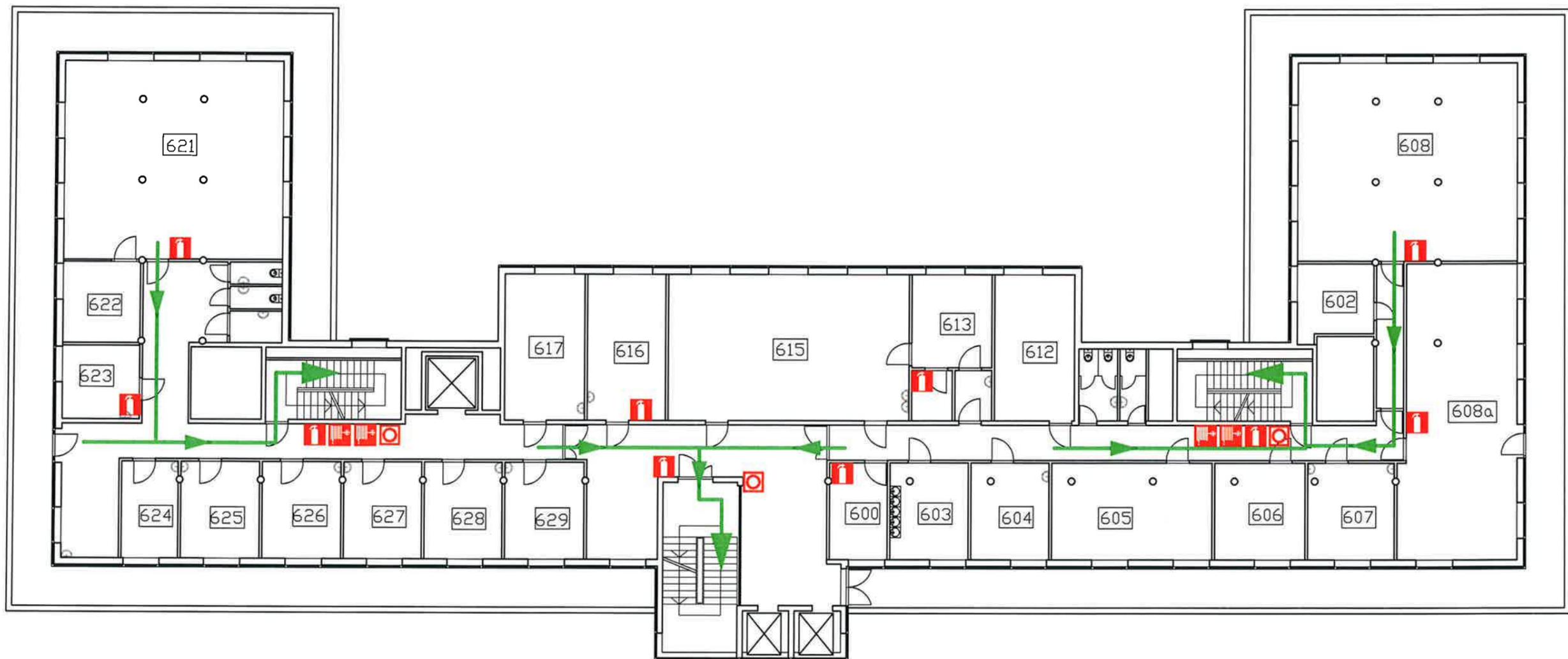
Fire hose system cabinet



Evacuation path

Evacuation plan

Nooruse 1, Tartu
Tartu University, 6 floor



Legends:



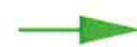
Fire alarm button



Extinguisher



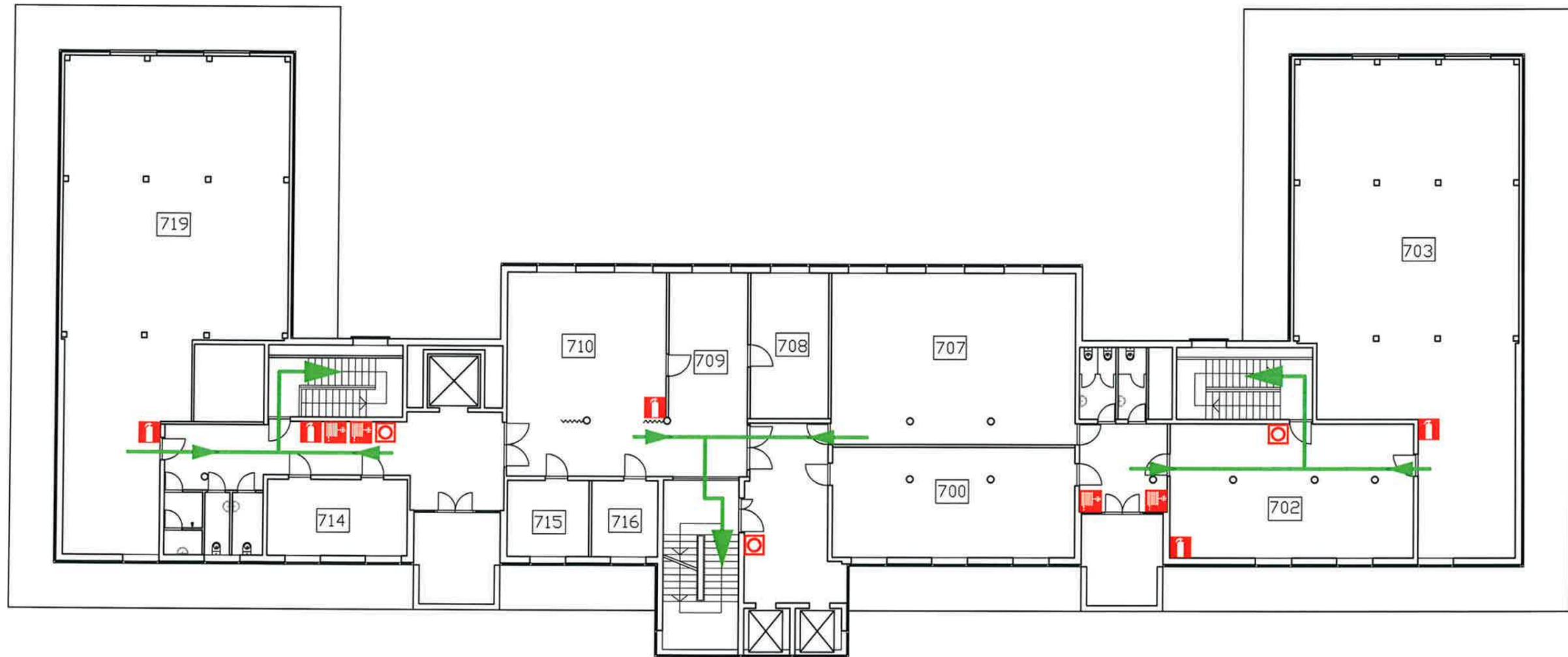
Fire hose system cabinet



Evacuation path

Evacuation plan

Nooruse 1, Tartu
Tartu University, 7 floor



Legends:

-  Fire alarm button
-  Extinguisher
-  Fire hose system cabinet
-  Evacuation path