

Materská škola Limbova

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The subject of this bachelor's thesis is the design of a kindergarten in the Juh housing estate in Trnava. The site is located within an educational building block, accessible from Limbová Street from two directions – south and west. Clearly defined existing functional and operational relationships within the area, as well as a diverse local context, dictate a narrow range for the functional placement of the building on the plot. Consequently, the design does not view architecture as an isolated object, but rather as an integral part of broader and narrower operational dynamics.

The primary determinant of the final design becomes the local context, particularly the structures in the immediate vicinity. While the urban block is bounded by residential family houses to the north, it is overshadowed by high-rise panel apartment buildings to the south and west. However, these are not the only standardized structures in the area; the urban block itself contains standardized buildings of a gymnasium and a kindergarten – both serving as relics of the rapid construction boom of the 1970s. It is the building of the existing kindergarten that significantly contributes to the floor plan scheme of the new design through its spatial layout. Following an analysis of individual principles and their adaptation to contemporary standards, a new, adapted, and adaptable floor plan scheme emerges. This scheme respects the original corridor-based layout and utilizes the classroom as the primary project module, while operating within a free structural modular grid of 2x2 meters.

Based on analyses of selected existing school grounds (see seminar paper), the design implements three additional shared principles. The first of these consists of daylighting and sanitation, where the design borrows the original window proportions and subsequently enlarges them. In doing so, it updates the demanding contemporary standard requirements for classroom ventilation, resolving them through stack ventilation via a shed skylight positioned above all classrooms.

A crucial element within sanitation is the mental hygiene (psychohygiene) of the children themselves, who require high-quality public space for their development. However, architecture and public space are not separated entities; they should be mutually integrated into every project. According to OECD studies on the experiences of preschool-aged children, the ideal scenario involves integrating kindergartens and primary schools into a single campus. This creates an opportunity within the design to share specific parts of the public space, allowing for the integration of children across different age groups, which subsequently breaks down social barriers.

The second principle involves the expressive and compositional elements of the building. The design retains the simple form of an extruded rectangle, enriching it with two skylights that disrupt the object's symmetry. In the expressive language of the facade, the design maintains a pronounced horizontality. This is achieved through a linear ribbon of windows, as well as a steel pergola stretching in front of the southern facade. The pergola provides a protected outdoor space for all classrooms while simultaneously ensuring solar shading for the individual rooms situated along the facade.

The final, yet no less significant factor is the structural and technical solution. The design continues to utilize large-span glazing; however, it replaces the concrete skeleton system with a timber skeleton system. The latter brings a higher degree of sustainability and allows for easier future adaptation or disassembly of the structure. The building is designed entirely using dry construction methods within the floor compositions, and the majority of materials consist of dry assembled systems. Recycled concrete is utilized solely in the underground floor, adhesives are designed without cement components, and thermal insulation consists predominantly of wood-fiber boards.

The resulting design of the kindergarten on Limbová Street thus essentially acts as a certain antithesis to the standardized buildings that surround it. It draws inspiration from the same principles, extracting precedents that it re-evaluates and adapts to contemporary standards. In doing so, it creates an object that is not merely an architectural solution, but an impulse for studying the standardized structures of the past century, leading to their subsequent understanding and sensitive adaptation.

Predmetom bakalárskej práce je navrhnutie materskej školy na sídlisku Juh v Trnave. Riešené územie sa nachádza v bloku školských stavieb, prístupné z Limbovej ulice dvoma smermi – južným a západným. Jasne definované existujúce funkčno-prevádzkové vzťahy na území, ako aj rozmanitý lokálny kontext determinujú úzku škálu funkčného umiestnenia domu na pozemok. Návrh tak nevníma architektúru ako samostatný objekt, ale ako súčasť širších, aj užších prevádzkových vzťahov. Hlavným determinantom výslednej podoby návrhu sa stáva lokálny kontext, a teda najmä stavby v bezprostrednej blízkosti. Zatiaľ čo zo severu je urbanistický blok ohraničený rodinnými domami, zo strany južnej a západnej ho zatieňujú vysoké panelové bytové domy. Tie však nie sú jedinými typizovanými stavbami v okolí; priamo v riešenom urbanistickom bloku totiž stoja aj typizované budovy gymnázia a materskej školy. Obe ako spomienky na rýchlú výstavbu sedemdesiatych rokov. Práve budova existujúcej materskej školy svojou pôdorysnou schémou výrazne prispieva ku pôdorysnej schéme návrhu materskej školy. Po analýze jednotlivých princípov a ich adaptácii ku dnešným štandardom vzniká nová, adaptovaná a adaptovateľná pôdorysná schéma, ktorá rešpektuje pôvodnú chodbovú dispozíciu, využíva triedu ako základný modul projektu, avšak operuje s voľnou konštrukčnou modulovou sieťou 2x2 metre.

Na základe analýz vytipovaných existujúcich školských areálov (vid' seminárna práca) využíva návrh ďalšie tri spoločné princípy. Prvým z nich sú svetlotechnika a hygiena, kde si návrh požičiava veľkosti okien a následne ich zväčšuje. Aktualizuje tým aj náročné súčasné normové požiadavky na vetranie tried, ktoré rieši komínovým vetraním cez pultový svetlík, umiestnený nad všetkými triedami.

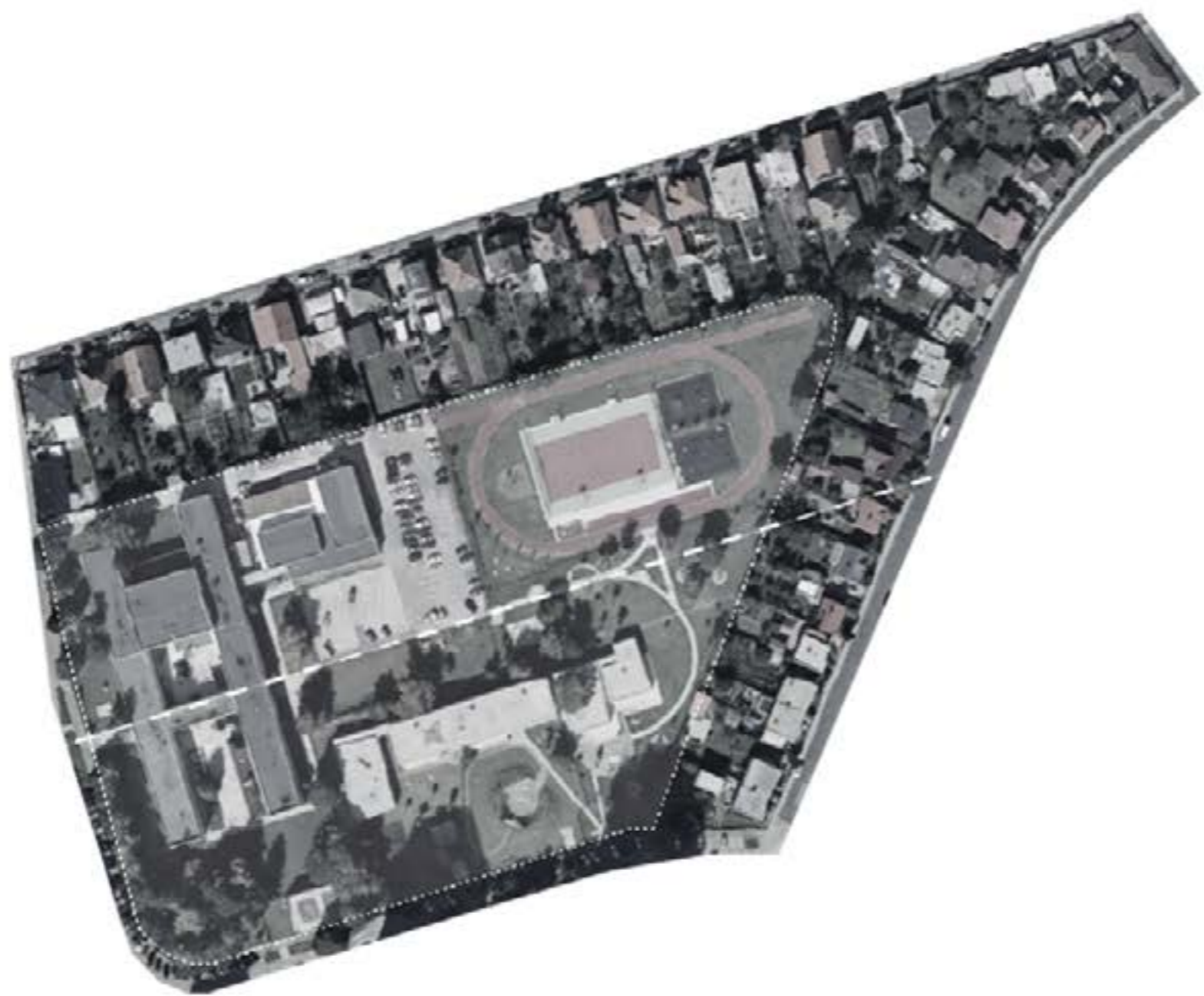
Podstatným prvkom pri hygiene je aj psychohygiene samotných detí, ktoré ku svojmu vývinu potrebujú kvalitný verejný priestor. Architektúra a verejný priestor však nie sú navzájom separované a mali by byť navzájom integrované do každého projektu. Na základe štúdie OECD o prežívaní detí predškolského veku vyplýva, že ideálnym je prepojenie materských a základných škôl do jedného areálu. Tým vzniká v návrhu možnosť zdieľania jednotlivých častí verejného priestoru, a možnosť

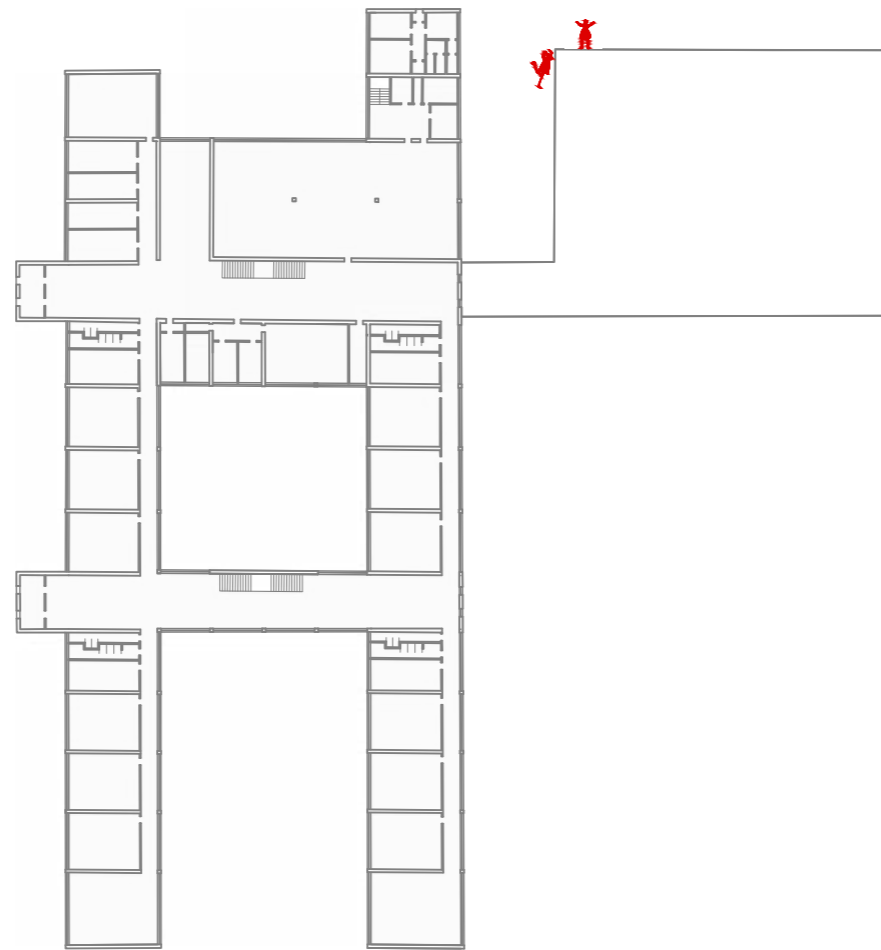
integrácie detí jednotlivých vekových kategórií, čím sa následne odbúravajú sociálne bariéry. Druhým z princípov sú výrazové a kompozičné prvky stavby. Návrh si zachováva jednoduchý tvar extrudovaného obdĺžnika, a obohacuje ho o dva svetlíky narúšajúce symetriu objektu. Vo výrazovom jazyku fasády si návrh zachováva výraznú horizontalitu. Tú zabezpečuje práve lineárnym pásom okien, avšak aj oceľovou pergolou pred južnou fasádou. Tá zabezpečuje chránený exteriérový priestor pre všetky triedy, a zároveň aj tienenie pre jednotlivé miestnosti uložené pri fasáde. Posledným, ale nemenej podstatným faktorom je konštrukčné a technické riešenie. Návrh nadalej využíva veľkorozponové presklenia, avšak betónový skeletový systém zamieňa za skeletový systém drevený. Ten prináša vyššiu mieru udržateľnosti a umožňuje jednoduchšiu budúcu adaptáciu alebo rozobratie objektu. Stavba je navrhnutá bez vlhkých procesov v skladbe podláh a väčšina materiálov je riešená ako suché montované systémy. Recyklovaný betón sa využíva len v podzemnom podlaží, lepidlá sú navrhnuté bez cementových zložiek a tepelné izolácie sú prevažne z drevovláknitých dosiek.

Výsledný návrh materskej školy na Limbovej ulici tak vo svojej podstate pôsobí ako istá antitéza ku typizovaným objektom, ktoré ju obklopujú. Inšpiruje sa rovnakými princípmi, čerpá z nich precedensy, ktoré prehodnocuje a adaptuje na súčasné štandardy. Vytvára tým objekt ktorý nie je len architektonickým riešením, impulzom ku štúdiu typizovaných stavieb minulého storočia, a ich následnému pochopeniu a citlivej adaptácii.

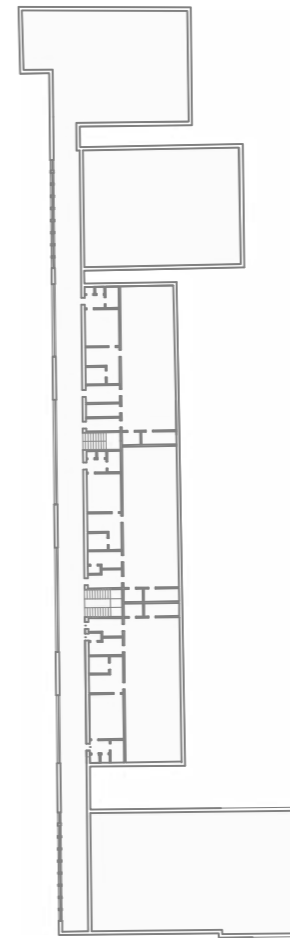








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Case study.I

The first example, representing the occurrence of this building type in major cities, is the Plickova Street Primary School in the northeastern part of Rača. It is one of the initial projects in a series aimed at expanding the capacity of educational facilities in the Bratislava Region, which has long suffered from a shortage of places in both primary schools and kindergartens. Built in the early 1970s, the building had fallen into a state of disrepair and had been closed and vacant since 2008. In 2019, the Rača district decided to undertake an extensive and costly reconstruction. The project became well-known primarily due to its distinct architectural identity, which, in addition to a pleasantly executed interior renovation, introduced a landscape design concept. This includes a red, circular composition that acts as a dominant and bold gesture in contrast to the surrounding urban fabric.

As a consequence, however, it indirectly seals off the primary school grounds from the kindergarten premises, preventing them from being integrated into a single functional unit where these playgrounds could also be used by kindergarten children. According to the OECD's Starting Strong toolkit, sharing spaces between kindergartens and primary schools can have a positive impact on children by fostering social bonds across age groups, optimizing space utilization, and easing a child's transition between educational levels. Based on this body of research, it is therefore more beneficial for the child if selected spaces are shared selectively, even if not entirely.

At the beginning of the reconstruction, the northeastern section of the corridor wing was demolished due to its dilapidated state, creating a larger outdoor space. However, it remains questionable whether the demolition of six classrooms is an ideal conceptual solution for a project whose primary purpose is to increase the capacity of school facilities. The Plickova Street Primary School project highlights the importance of micro-urban design and the integration of individual functions, as well as the critical need to expand the capacity of existing buildings.



Case study.II

Šahy, as a town situated on the border with Hungary, has a significant Hungarian-speaking community. Based on the 2021 census data, just over 57% of the inhabitants in Šahy use Hungarian as their primary language. Consequently, there is a clear need for an institution that educates children in their native Hungarian tongue. This role is fulfilled by the Lajos Pongrácz Primary School, which shares its premises with the Slovak-medium Janko Kráľ Primary School. The facility is a classic MS66-type standardized building that has not undergone any significant structural modifications, with the sole exception of a gymnasium wing and the connecting corridor that links it to the main building. The landscape design is limited to a single football pitch and open grassy areas, with no kindergarten located in the vicinity of the building.

However, since the building is derived from a series of standardized designs, its layout has not been adapted for use by two separate primary schools—let alone schools where one serves a national minority. To enforce this division, the building utilizes a wooden wall and planks that restrict students of one school from accessing the other. Due to historical events, relations between Slovaks and the Hungarian minority are often tense, and this method of spatial division only fosters segregation between the majority and the minority. A notable example of this friction is the book *Padajúce Masky* (Falling Masks), written by one of the school's teachers, which offers a metaphorical depiction of the workplace dynamics.

From an architectural standpoint, the case of the primary schools in Šahy demonstrates a function forced into a standardized building and highlights the shortcomings of standardized solutions in a specific context. It illustrates how crucial socialization spaces are for children, and how vital it is to transform dead transit spaces into communal, habitable areas. It presents a scenario where the design clashes with the limitations of a standardized layout, resulting in a loss of potential for shared spaces, and showcases a case where a standardized building actively reinforces negative human emotions and traits.



Case study.III

In the 1960s, an educational building block was established in the Juh housing estate in Poprad, originally consisting of two primary schools and four kindergartens. Over time, it expanded to include another kindergarten and an additional primary school, adding the Tajovského Street Primary School alongside the existing ones on Dostojevského and Mládeže streets. Together, they form an urban block of primary schools that remain operational to this day, the construction of which can be seen in the illustrations (Fig. 12).

The buildings were constructed as typical MS66 structures; however, they underwent minor modifications over time to adapt to the geographical context. Shallow pitched roofs were added to facilitate snow removal, barrier-free access was introduced to the primary schools, and new landscape design solutions were implemented. A notable example is the Mládeže Street Primary School, which extended its gymnasium wing to include a swimming pool. This school also exemplifies the previously mentioned theory regarding the co-education of multiple age groups: in addition to the nine-year primary school, it hosts a five-year German bilingual gymnasium and the first four years of an eight-year gymnasium. Similarly, the Dostojevského Street Primary School building accommodates a kindergarten alongside its nine-year primary school program under one roof.

However, Poprad is a city with a declining population, and consequently, some of the buildings originally serving as kindergartens ceased to be used for this purpose. Currently, out of the original five kindergartens, only two remain active; the rest serve as a leisure center, an administrative building, and a pub. When the function changed, however, the poor adaptability of the standardized kindergarten buildings became evident. Although constructed with a reinforced concrete skeleton, their structural span and original layout do not permit a radical typological conversion. In the case of the leisure center, for instance, this resulted in inadequate spaces for a billiard club or an archery club. A specific case is the former kindergarten building on Tomášikova Street, which is currently being converted into a residential building based on zoning plan amendments (see Fig. 13, 14). Due to the insufficient adaptability of the original structure, however, the entire former building will be razed to the ground, making way for a residential building that fails to communicate with the existing fabric in any way.





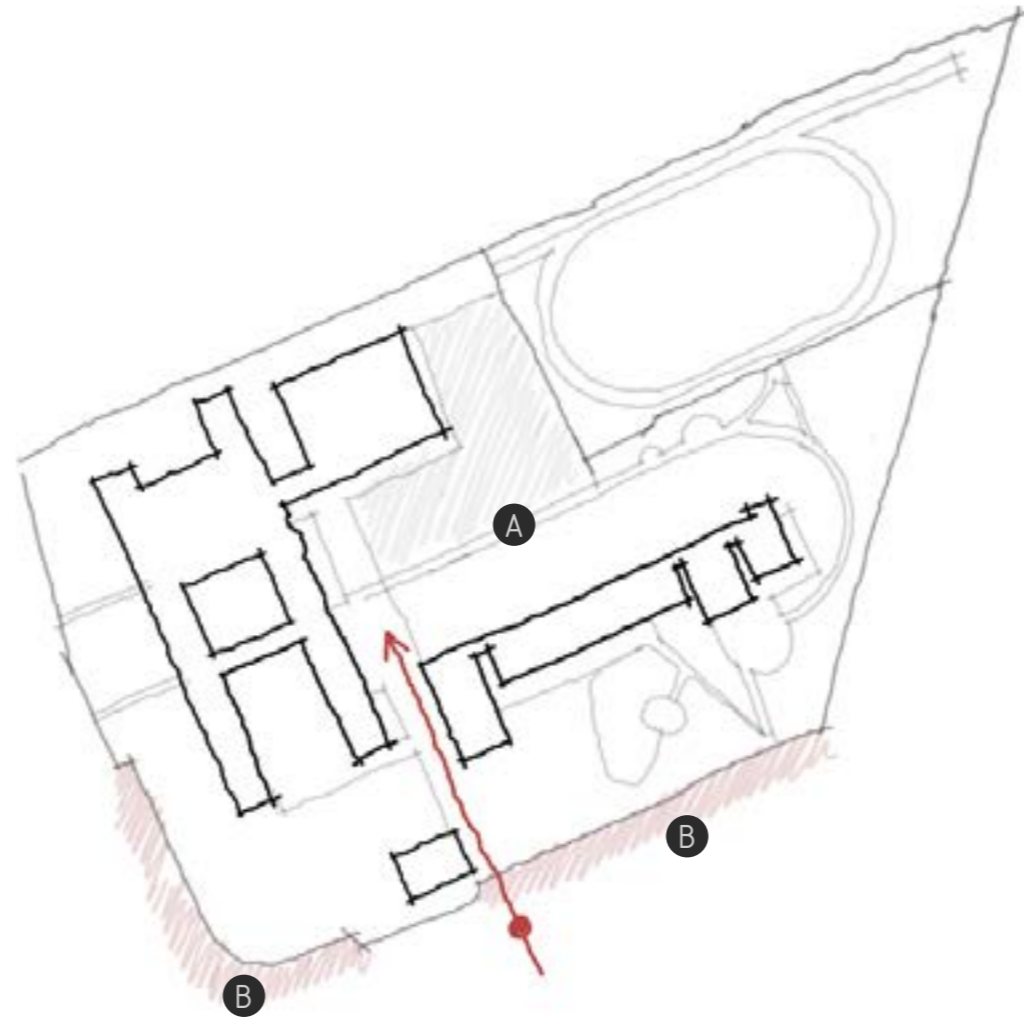
↓
connectibility



↓
social integration

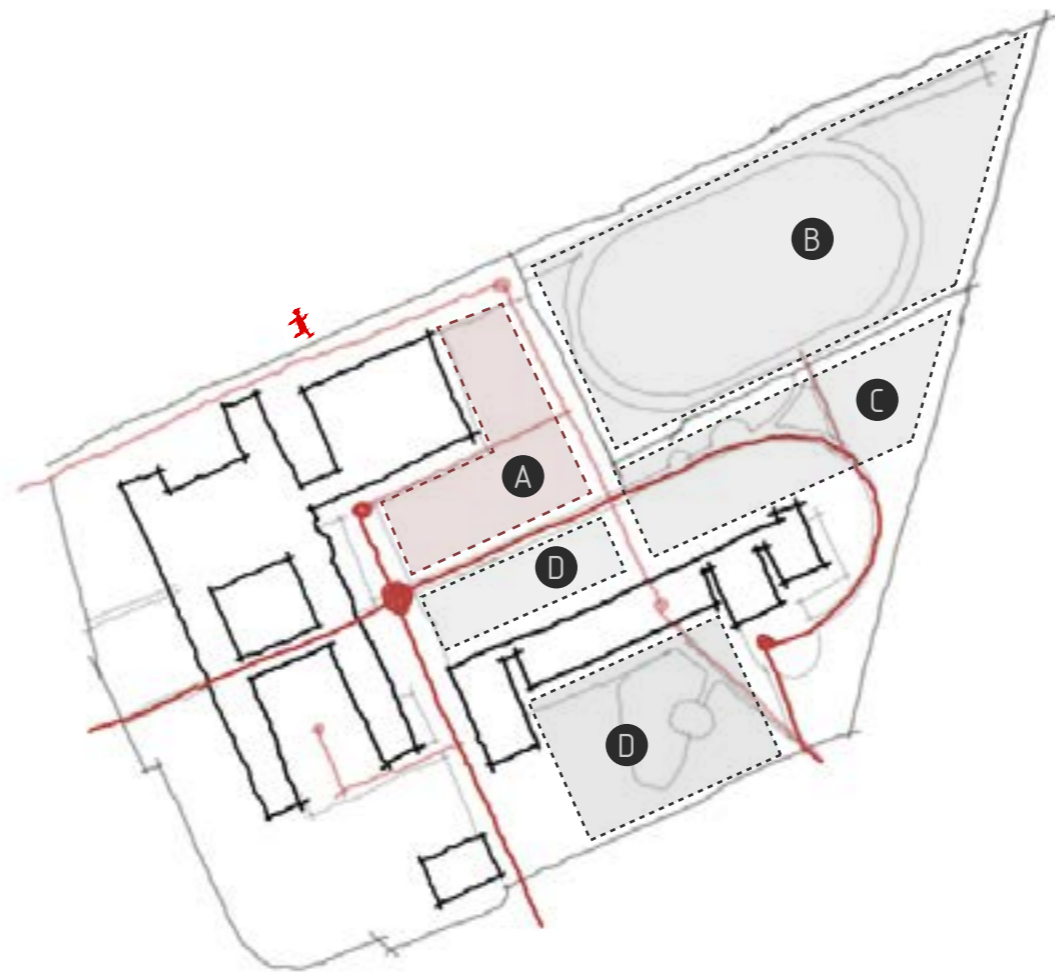


↓
adaptability



I

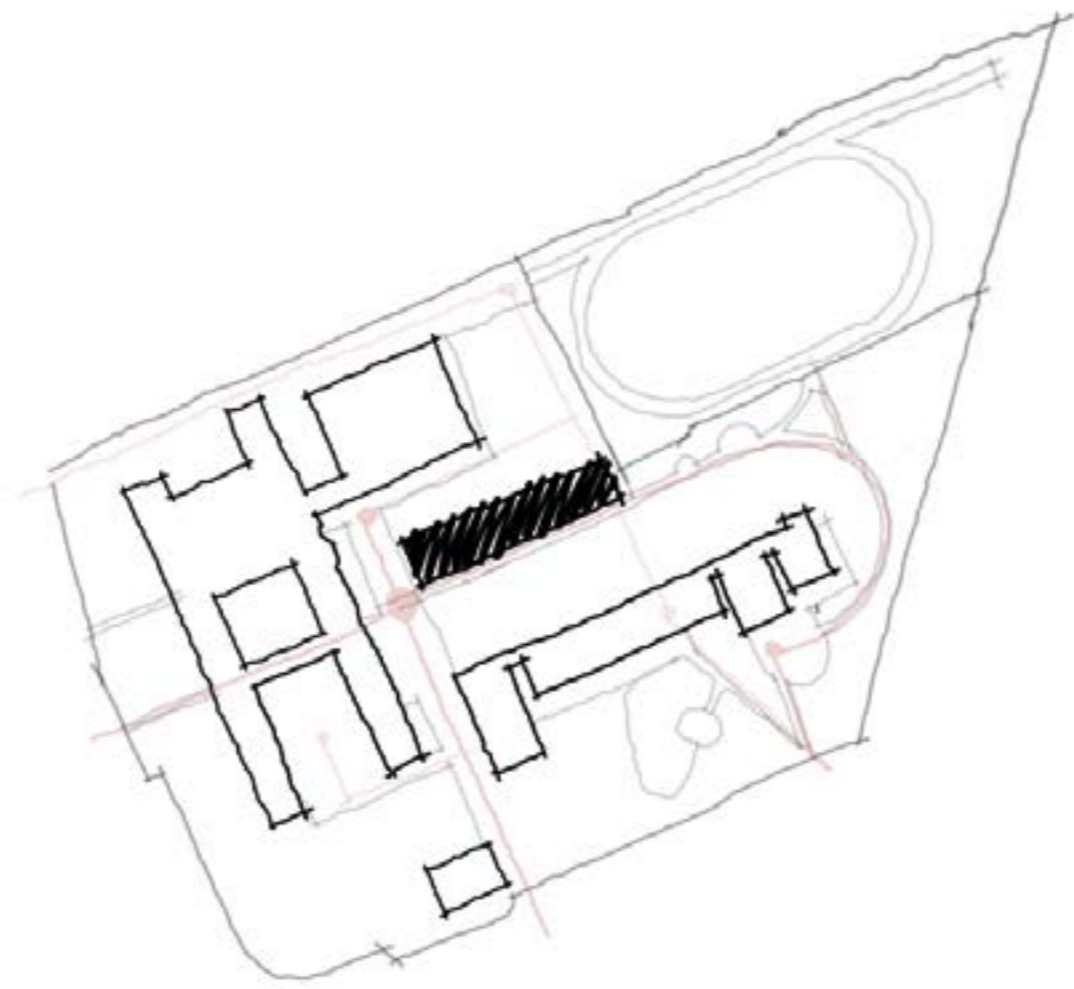
analysis of static traffic, addition of new main entrance to the area from where the static traffic is the most occurred.
A/ illegally built parking lot, demolished B/ existing parking lots



II

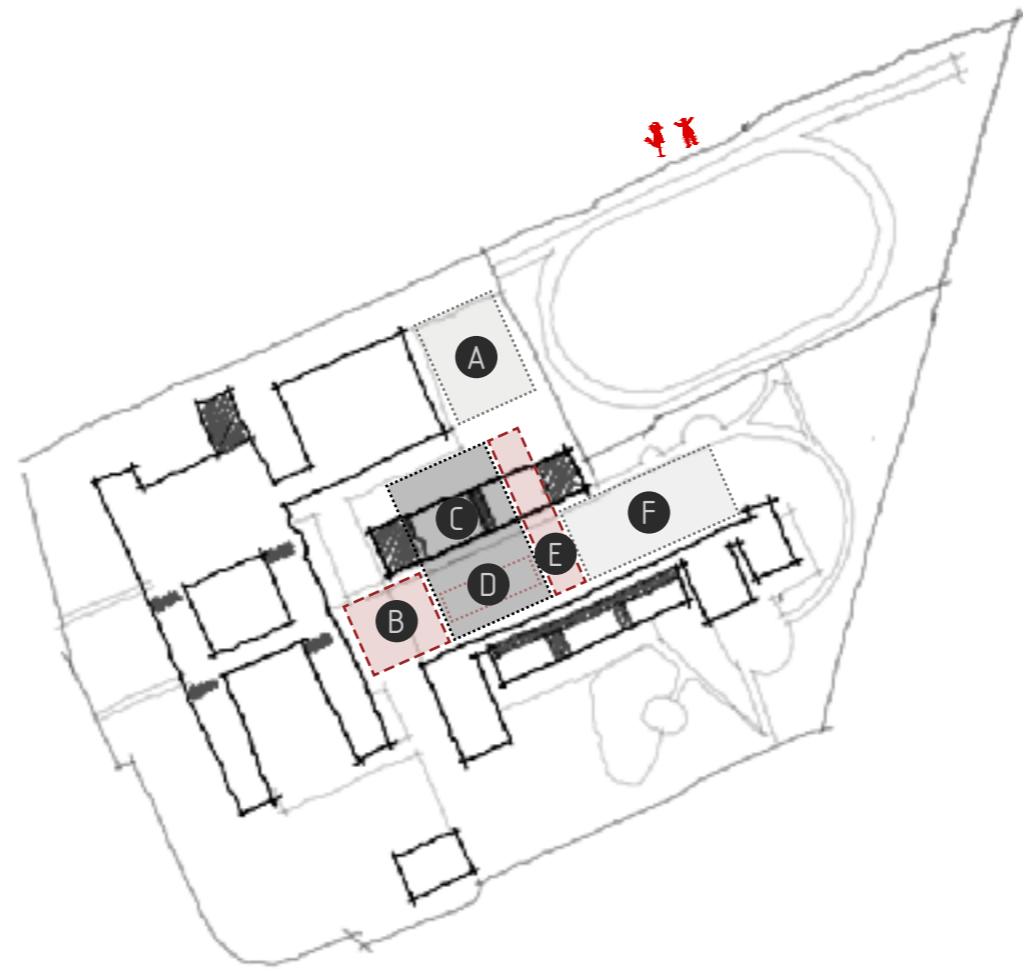
functional analysis of the area

A/ demolished parking lot B/ public sport area C/ semipublic playground area D/ private area for kindergarten



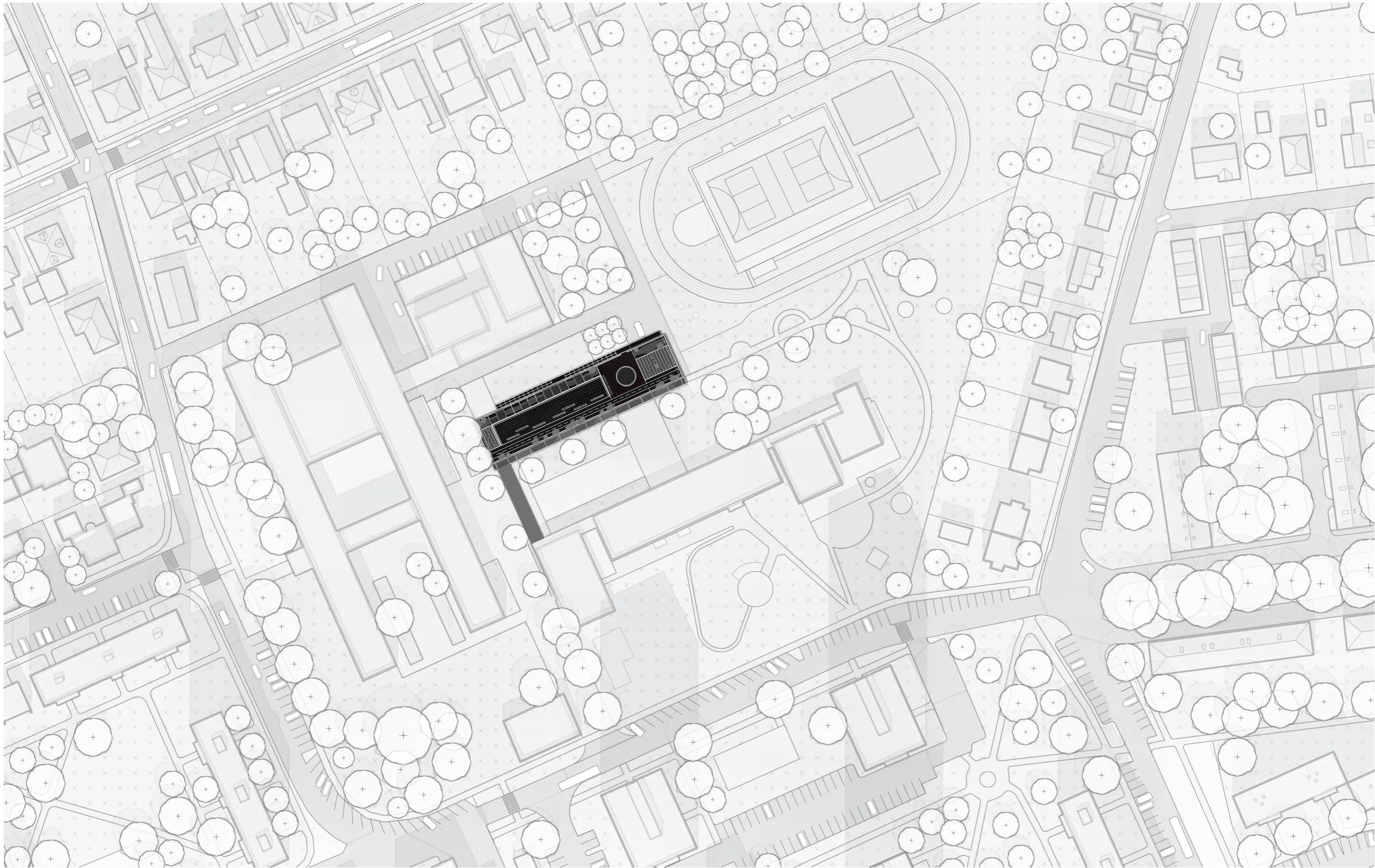
III

massing.



IV

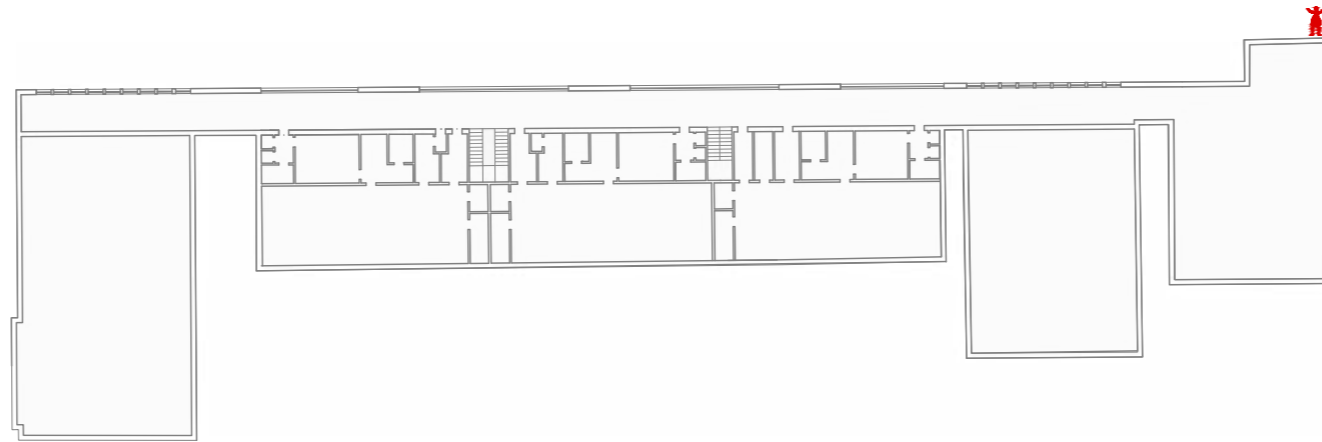
newly arised linear space used by both kindergartens, divided into spaces of different characters
A/ park, buffer greenery B/ square C/ quiet zone, low greenery D/ playgrounds E/ exterior foyer F/ grass





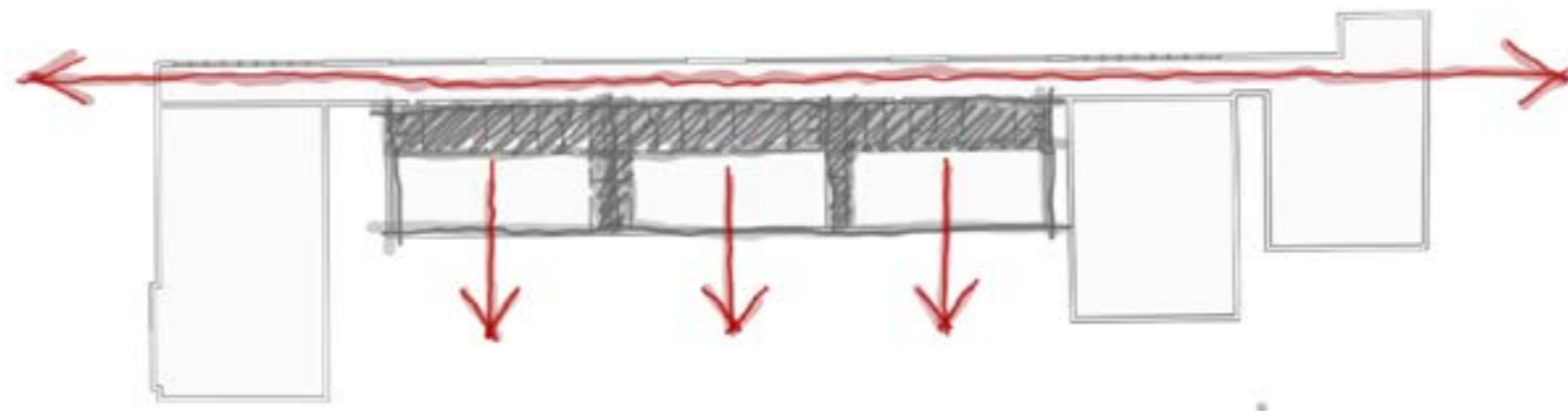
- | | | | | | | | | | | | | | | | |
|--|-------------|--|-----------------------|--|-----------------------|--|-----------------------------|--|-----------|--|-------------------------------|--|---------------------|--|------------------|
| | grass | | fence | | compressed sand | | EPDM, red | | paving | | Permeable paving | | asphalt | | area raingardens |
| | parking lot | | compressed sand bench | | street lamp, standing | | paving street lamp, hanging | | trash can | | Permeable paving bike parking | | entry to the object | | trash cans |
| | | | gate | | | | | | | | | | trash cans | | pavilion |





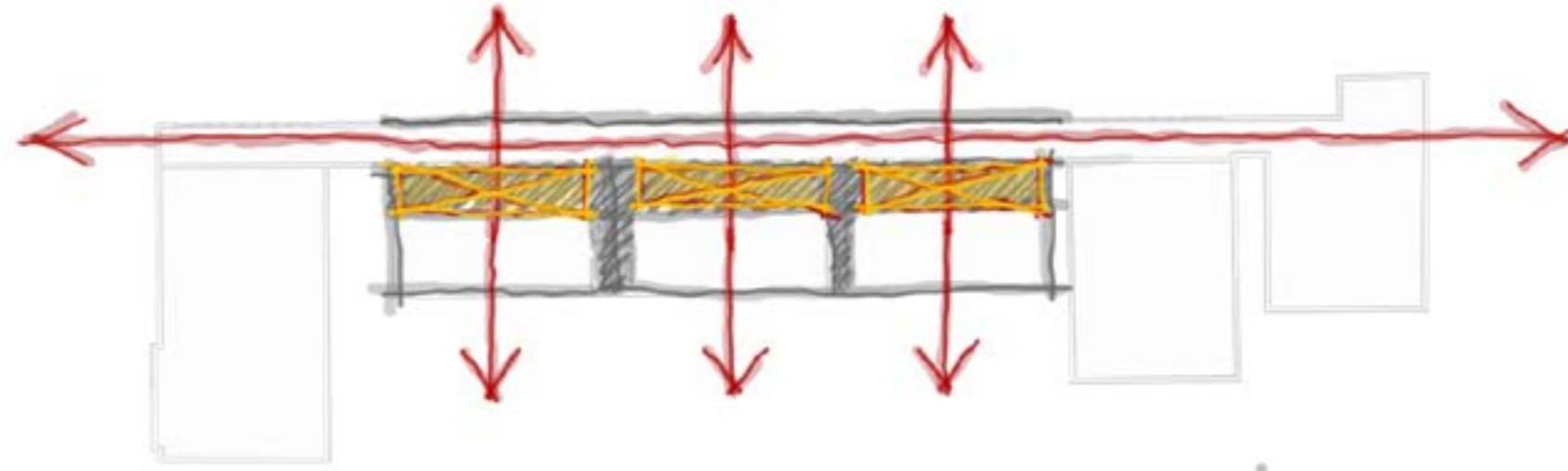
I

floor plan of existing kindergarten, to the south
(based on fire plans, due to lack of publicly available documents)



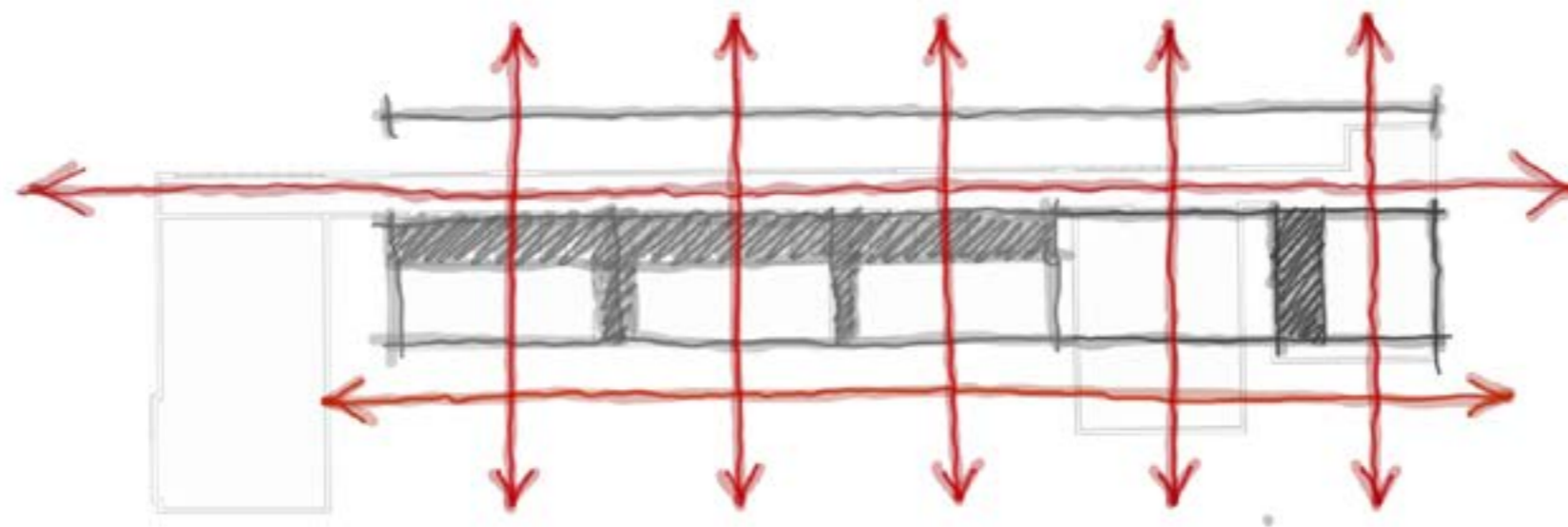
||

functional analysis of existing kindergarten



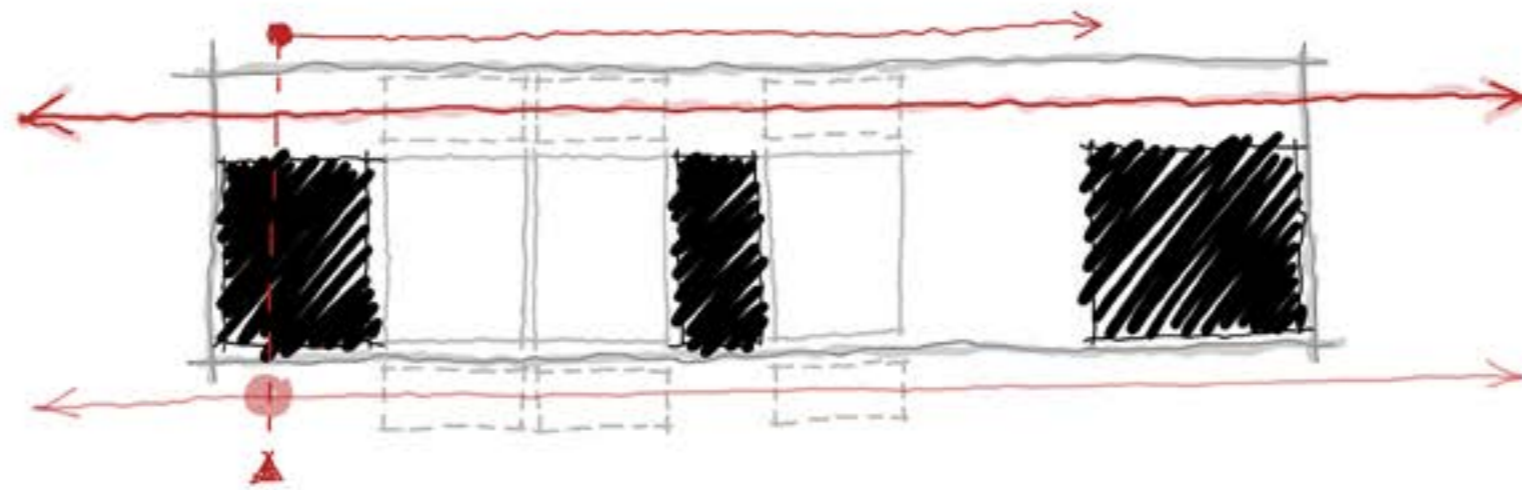
III

demolishing tracts, creating cross-ventilated layout



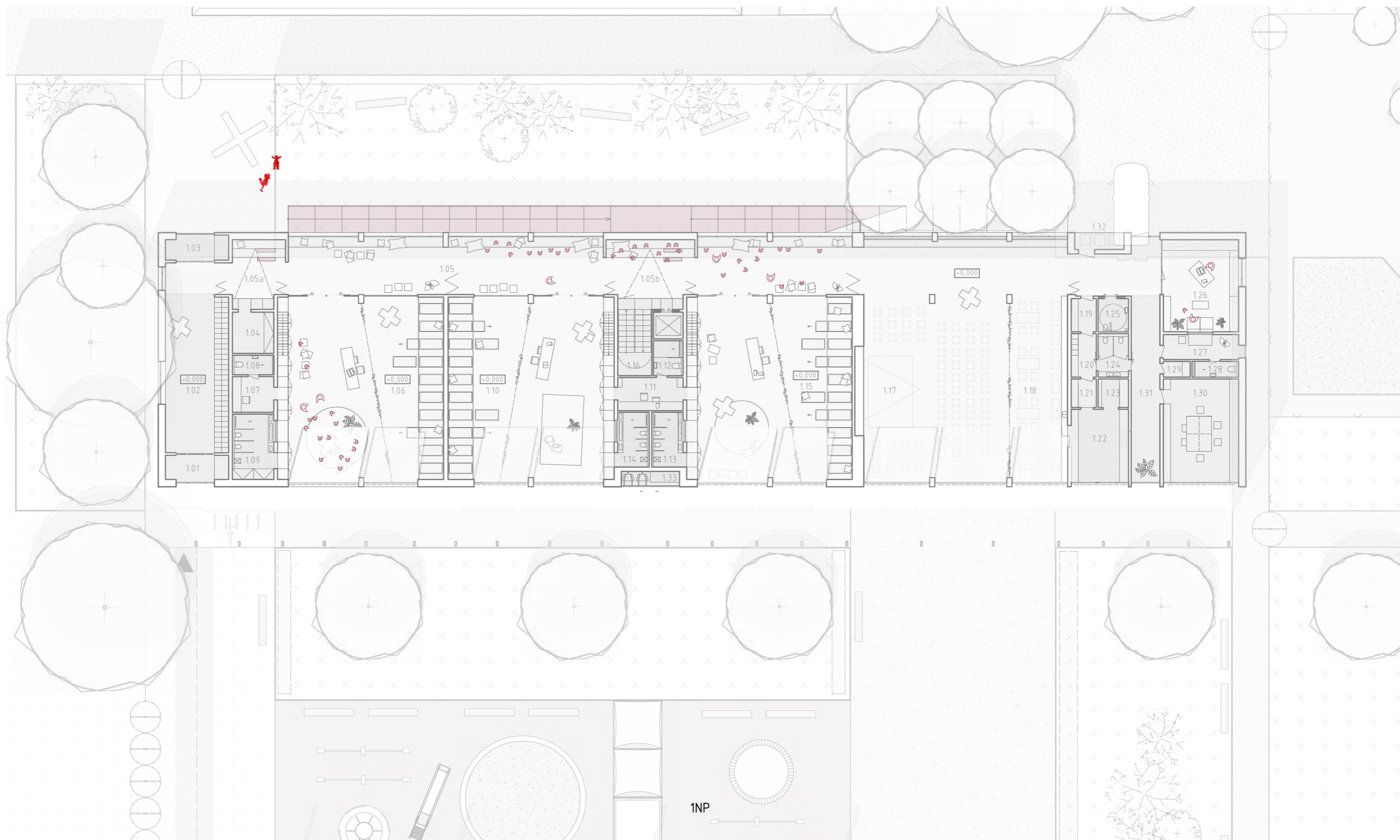
IV

addition of two more modules, widening the corridor into a hall



V

scheme of the proposal



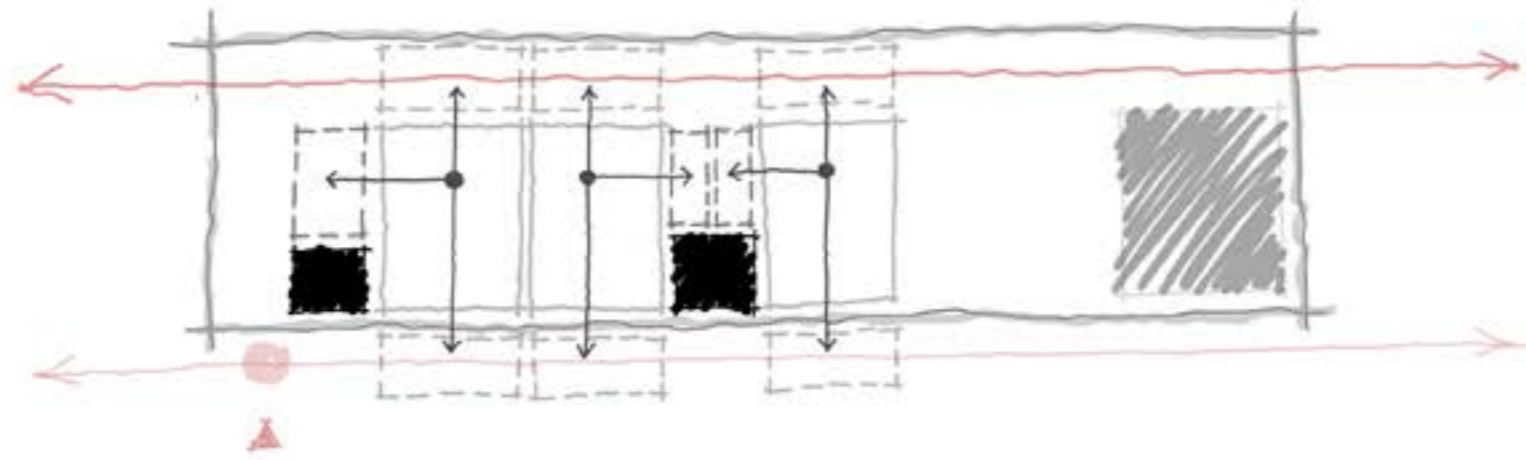
1.01	zádverie.....5,1m ²	1.02	šatňa.....37,8m ²	1.03	zádverie.....4,8m ²	1.04	sklad pre školníka.....5,5m ²	1.05	chodbová hala.....115,7m ²	1.06	trieda.....95,6m ²	1.07	miestnosť pre učiteľku.....5m ²
1.08	kúpeľňa.....2,8m ²	1.09	toalety.....8,6m ²	1.10	trieda.....95,6m ²	1.11	miestnosť pre učiteľku.....7,1m ²	1.12	kúpeľňa.....3,2m ²	1.13	toalety.....9,7m ²	1.14	toalety.....9,7m ²
1.15	trieda.....95,3m ²	1.16	schodisko.....7m ²	1.17	sála.....113,5m ²	1.18	jedáleň.....44,3m ²	1.19	sklad.....3m ²	1.20	šatňa.....3,6m ²	1.21	sklad.....2,6m ²
1.22	prípravovňa.....13,5m ²	1.23	sklad.....2,7m ²	1.24	toalety.....4,3m ²	1.25	WC.....3,9m ²	1.26	riadiťňa.....21,9m ²	1.27	izolačka.....6,2m ²	1.28	WC.....2,3m ²
1.29	upratovačka.....1,4m ²	1.30	zasadačka.....24,3m ²	1.31	chodba.....21,9m ²	1.32	odpadové hospodárstvo.....2,9m ²	1.33	ext sklad.....2,6m ²	1.05a	kino.....11,3m ²	1.05b	kino.....18,8m ²

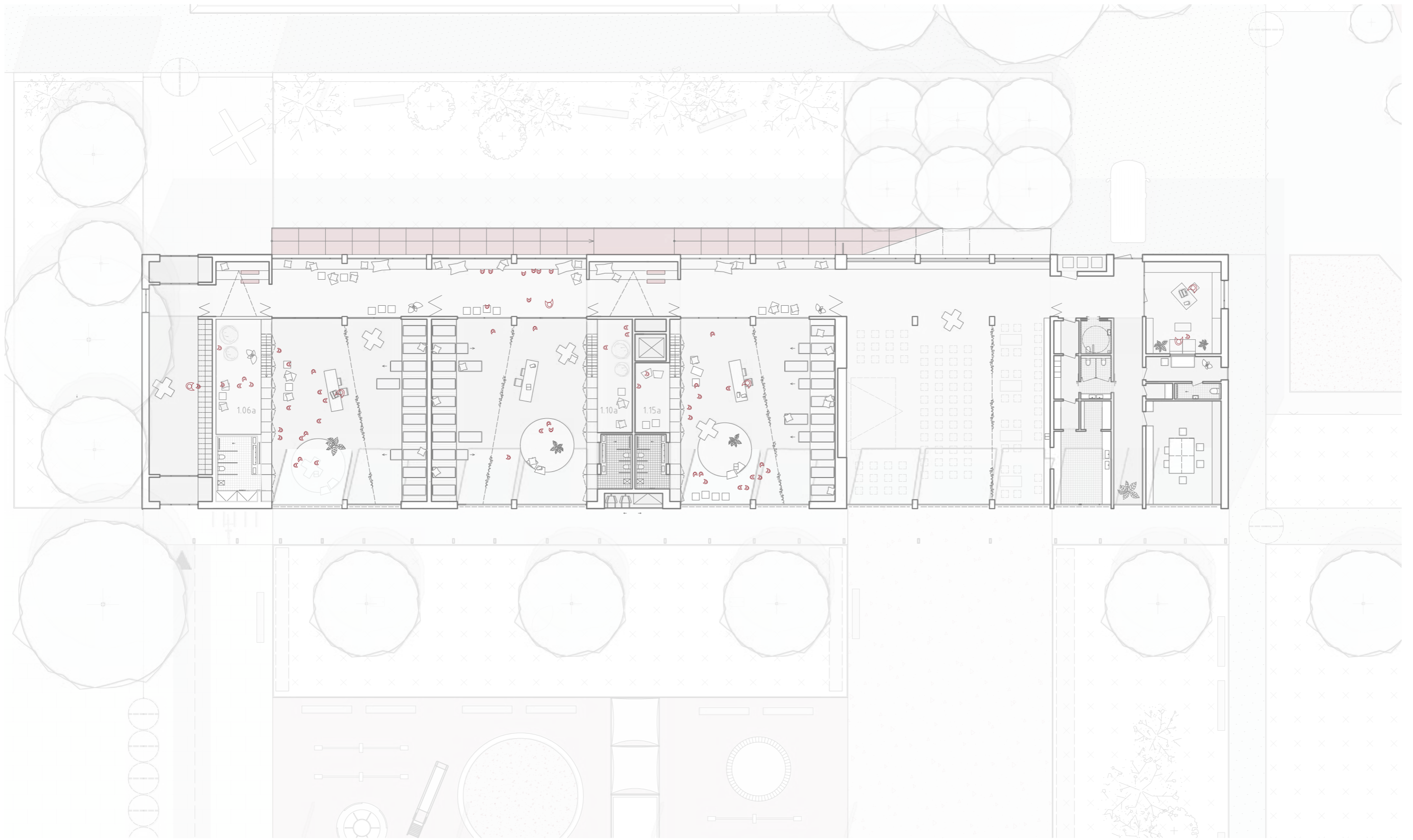


corridor hall



multifunctional hall



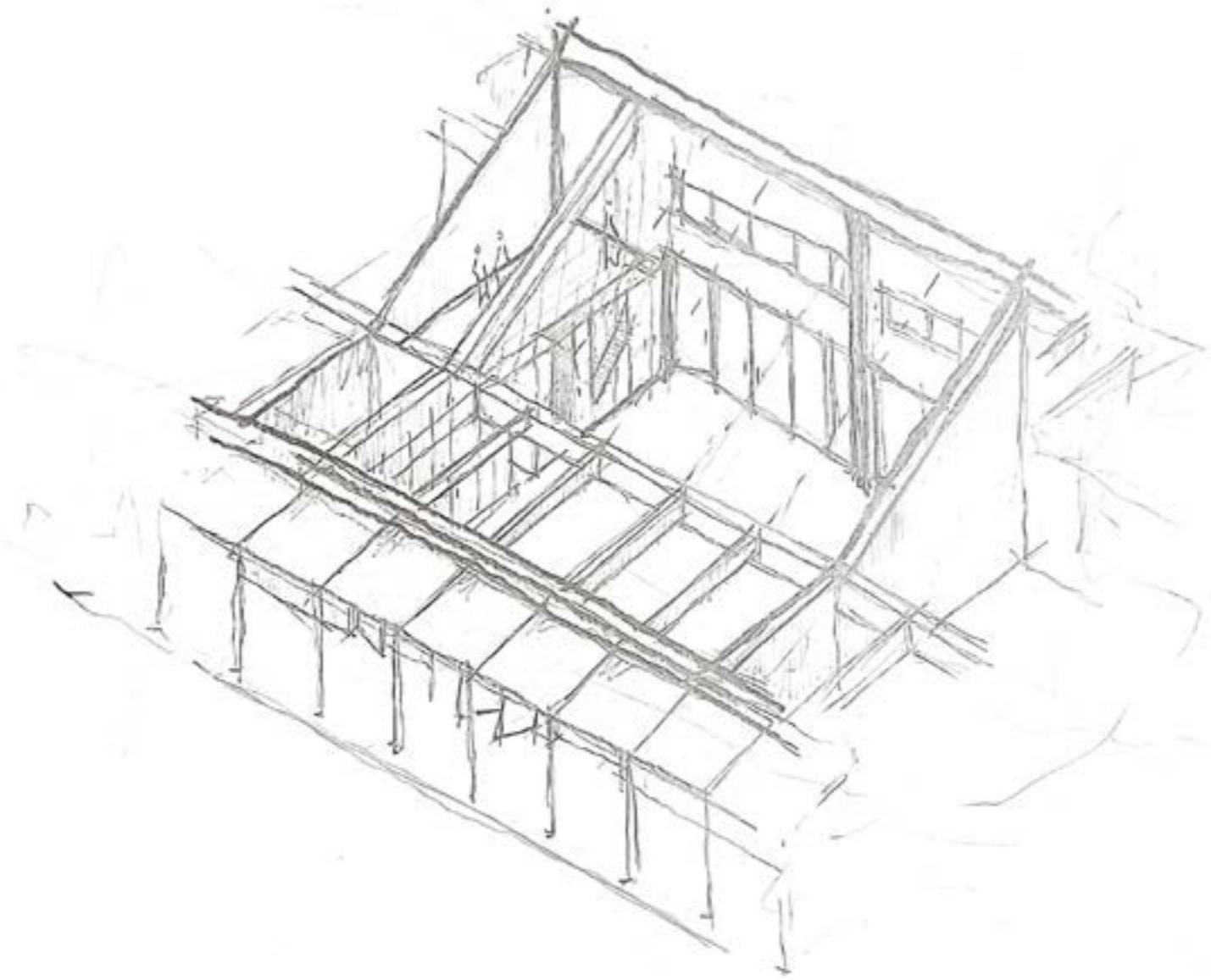


1.06a galéria.....16,2m²

1.10a galéria.....12,3m²

1.15a galéria.....8m²

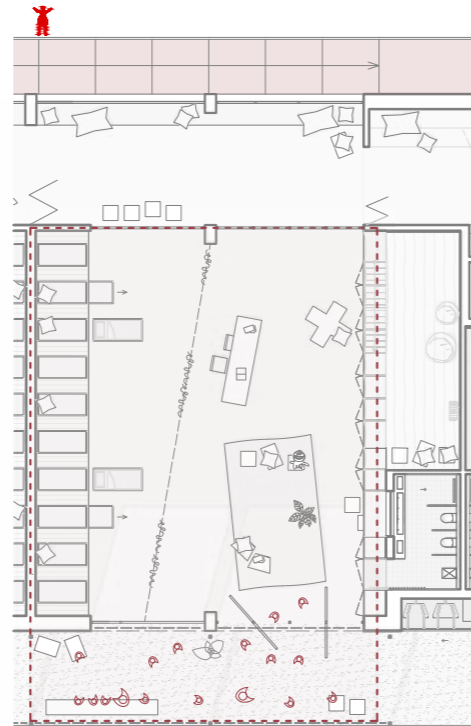




sketch of classrooms



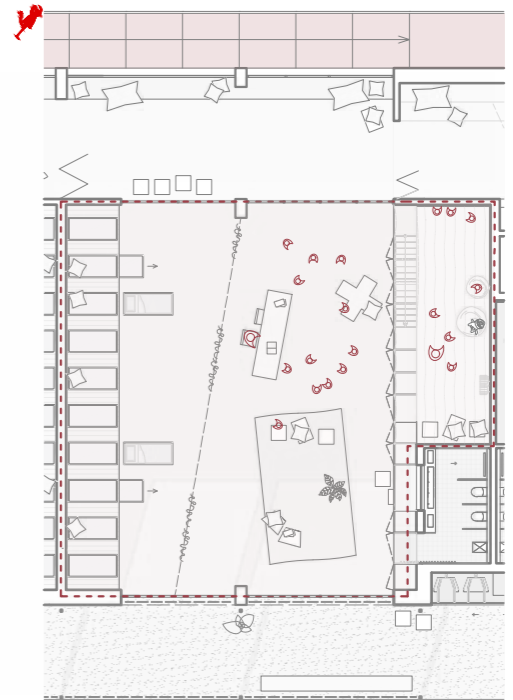
unit



unit + communal exterior terrace



unit + communal corridor hall



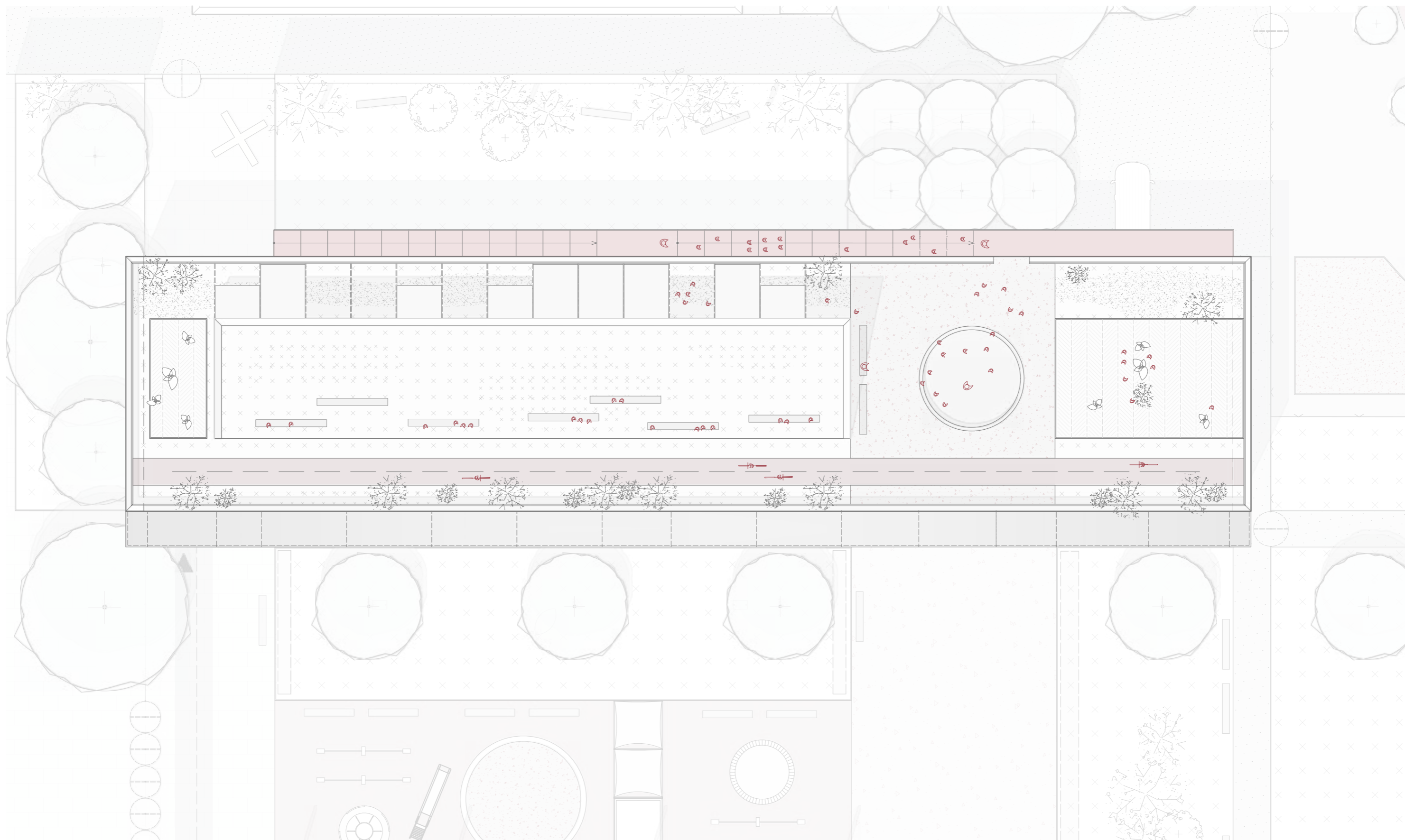
unit + gallery

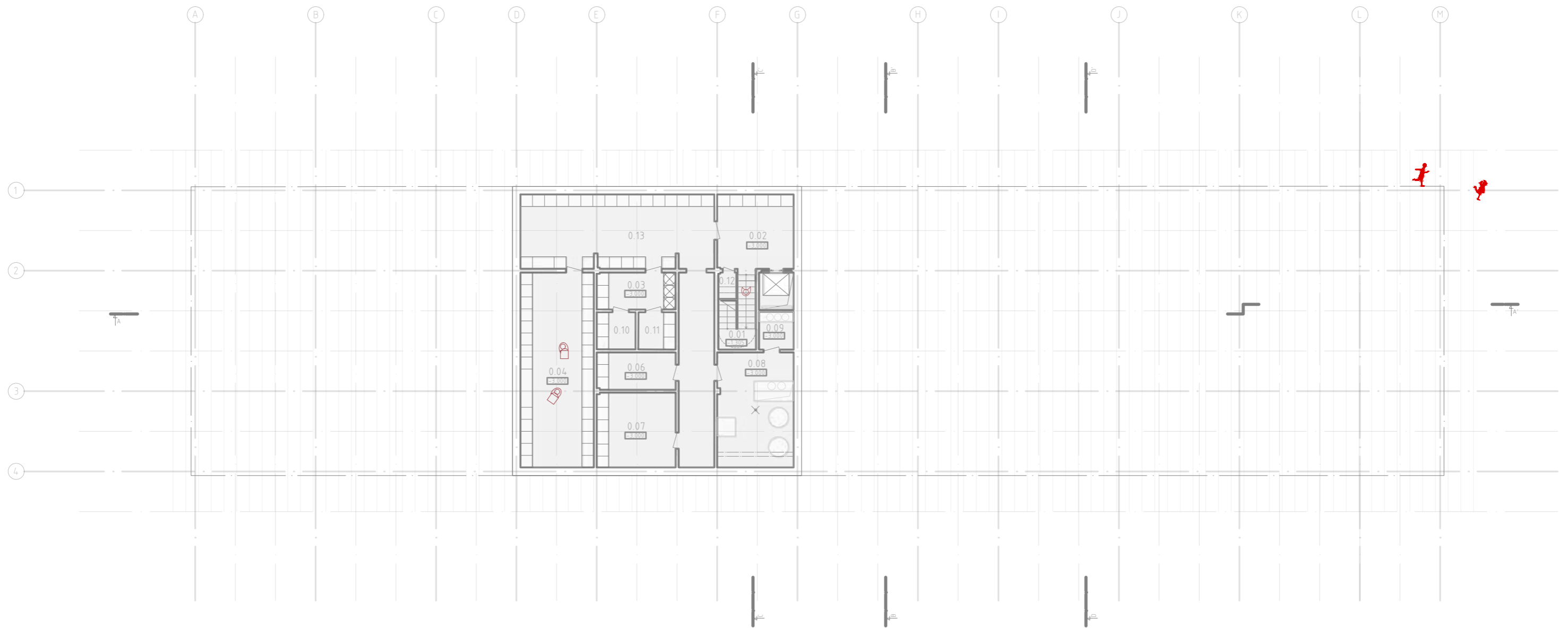
configuration of classrooms





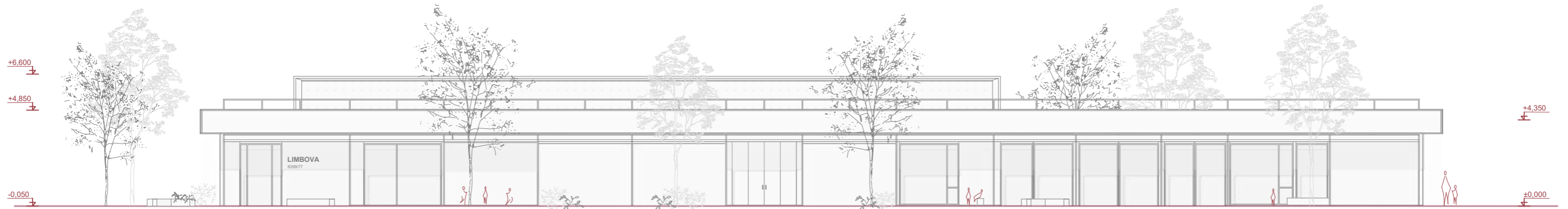
classroom





0.01	staircase.....7,8m ²	0.02	fire lobby.....14,03m ²	0.03	laundry.....7,16m ²	0.04	storage.....35,4m ²	0.05	corridor.....17,2m ²
0.06	storage - cleaning.....7,25m ²	0.07	storage - utilities.....14,6m ²			0.08	MEP21,75m ²	0.09	agregate for elevator.....3,7m ²
0.10	storage - clean clothes.....3,41m ²	0.11	storage - dirty clothes.....3,41m ²			0.12	storage.....1,75m ²	0.13	storage35,1m ²



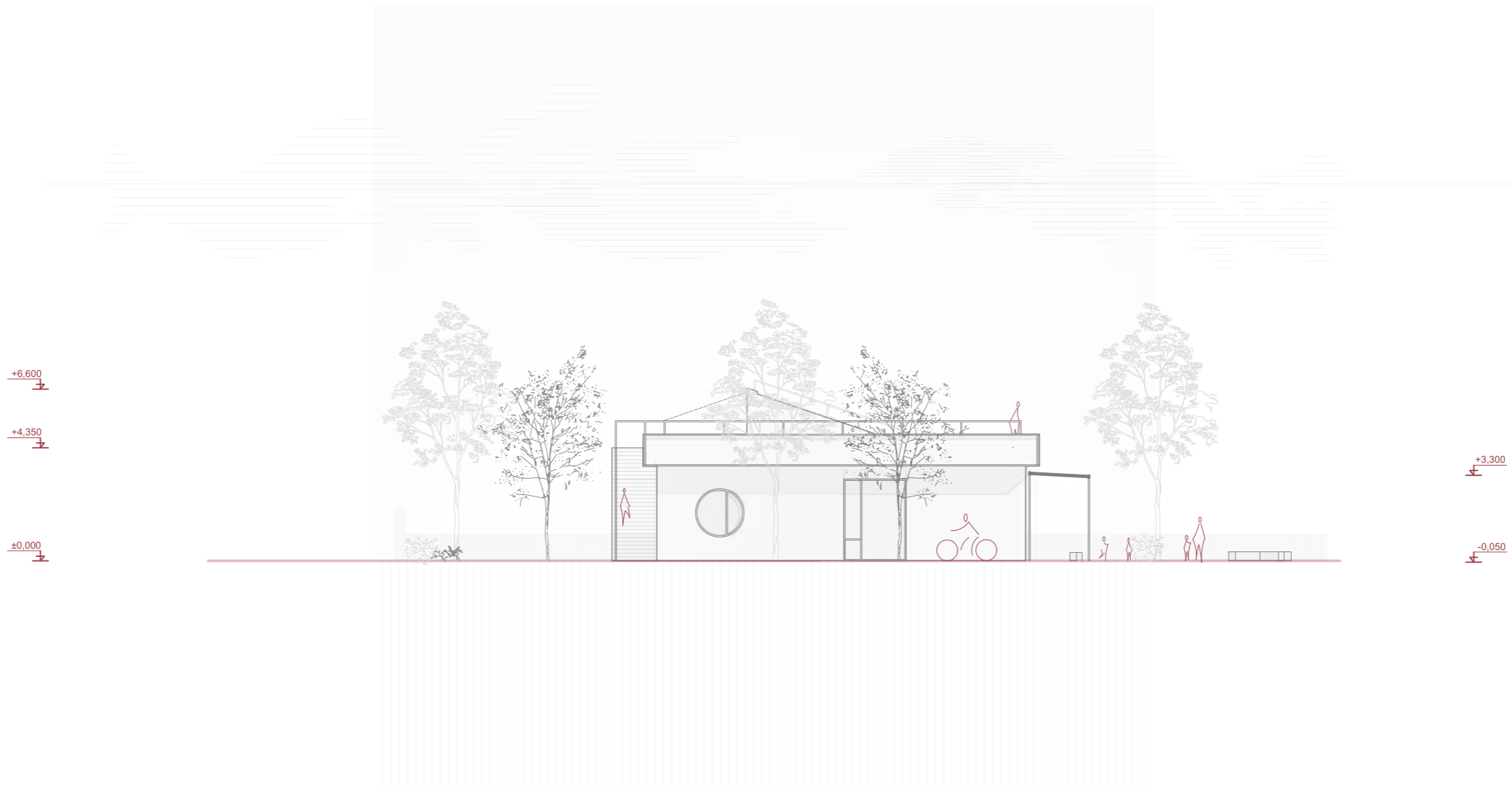


elevation.S



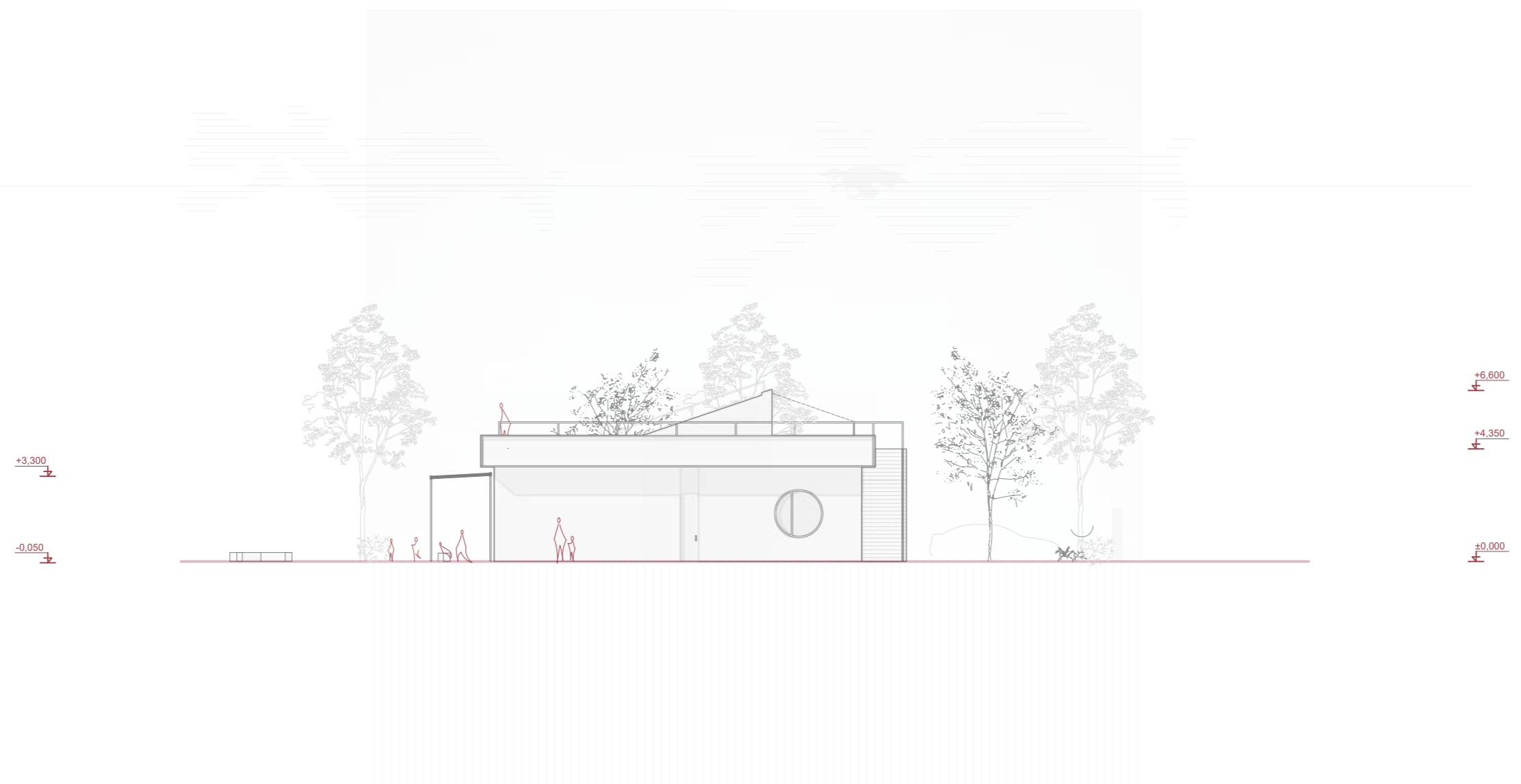


fragment



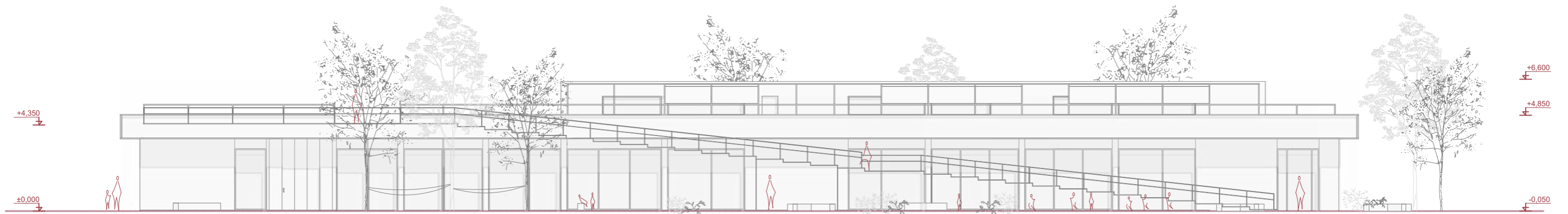
elevation.W





elevation.E





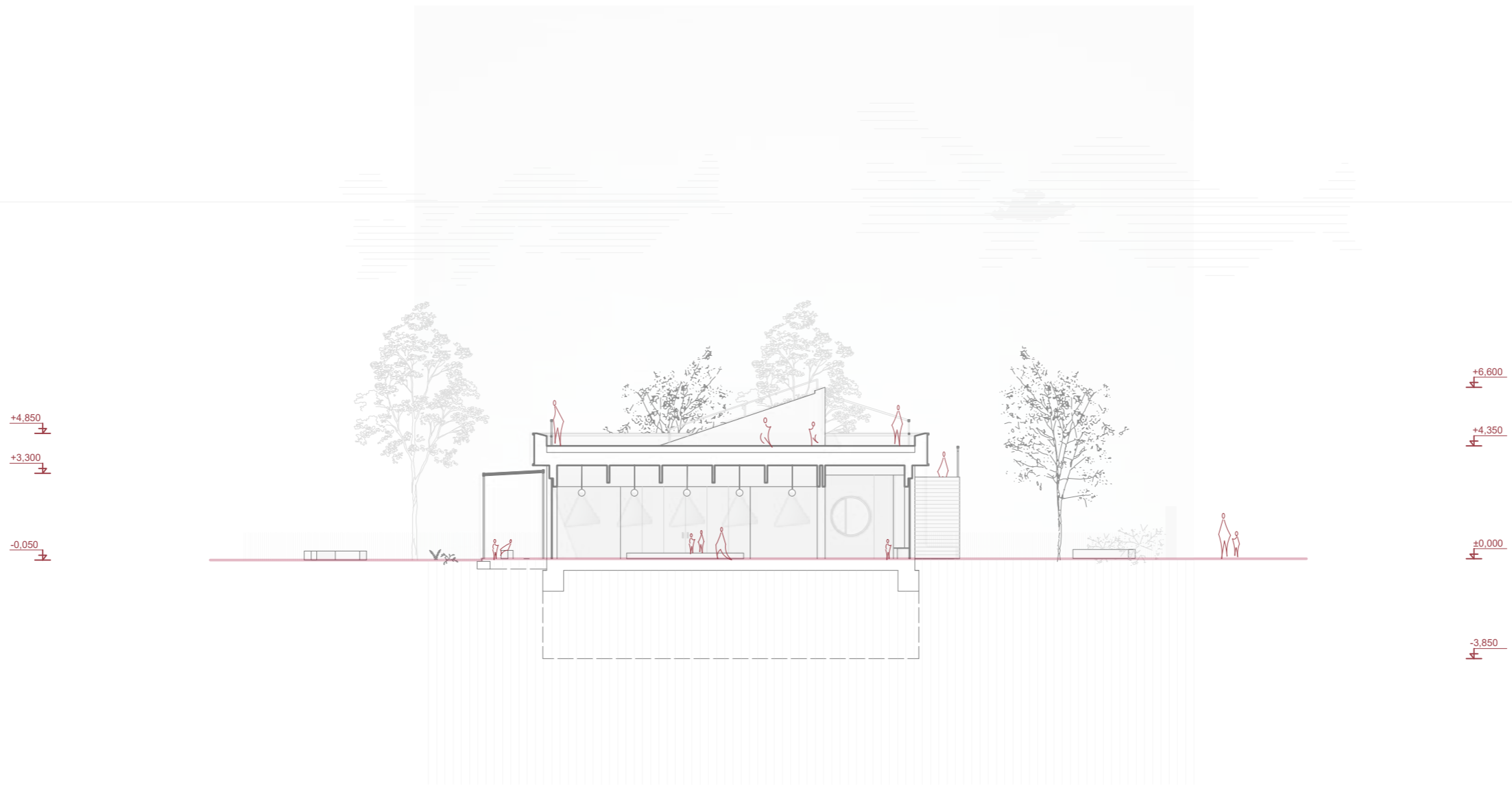
elevation.N





section A.A

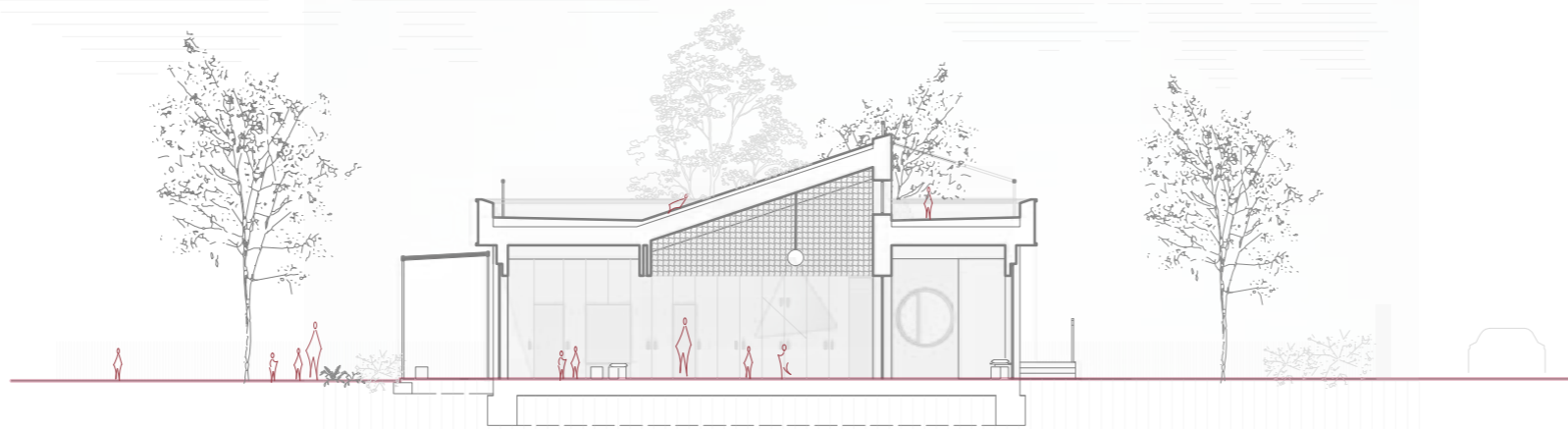




section B.B



+4.850
+3.300
-0.050



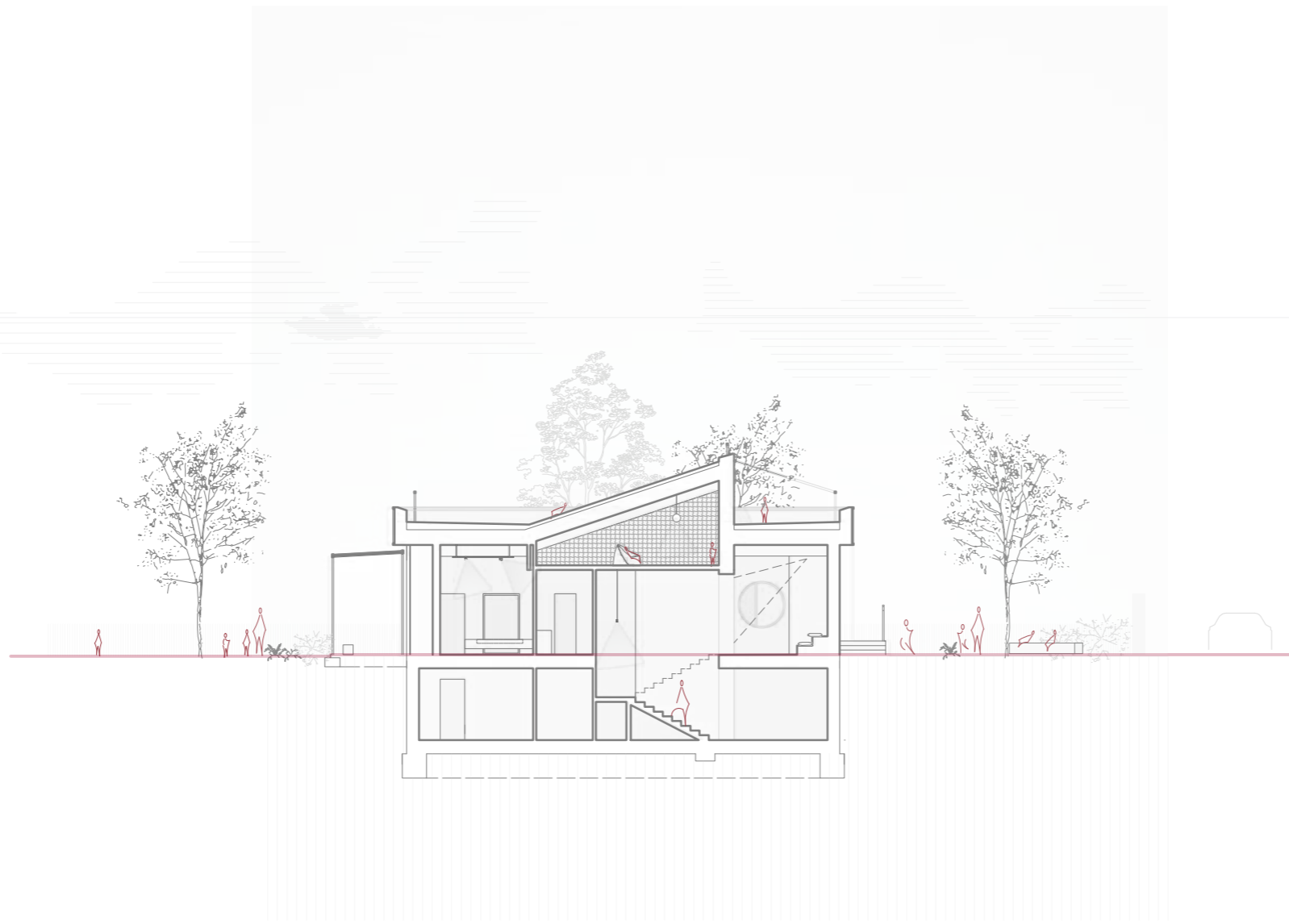
+6.600
+4.350
±0.000

section C.C

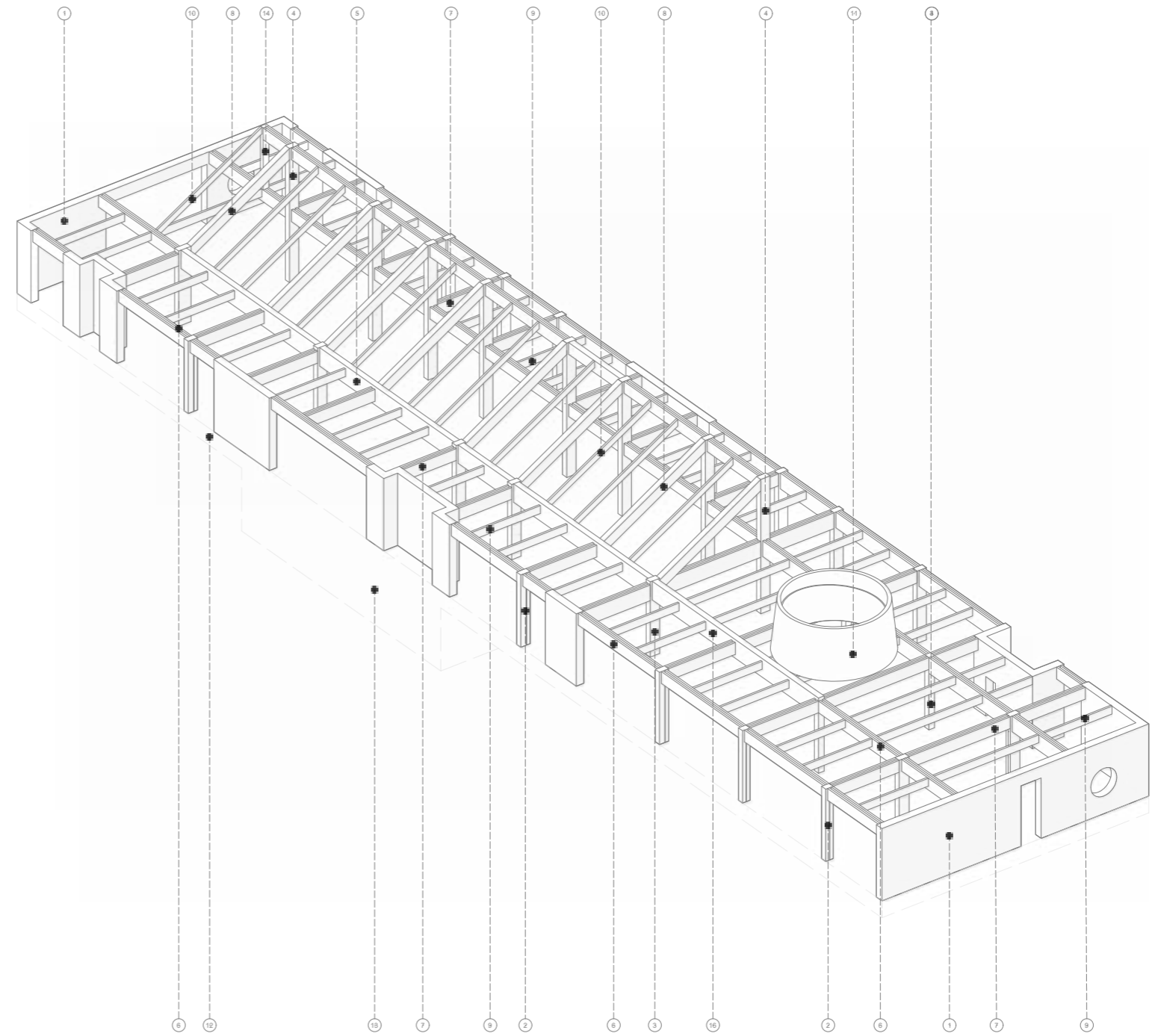
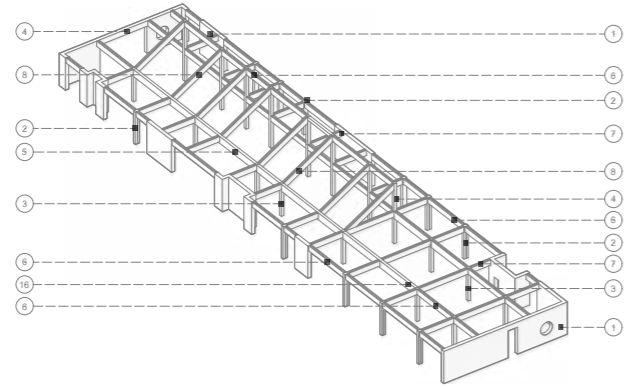
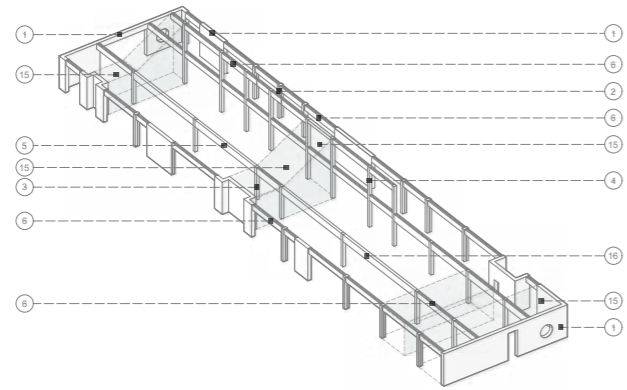
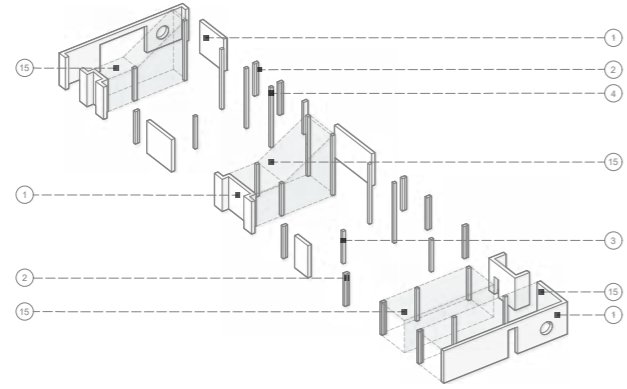


+4.850
+3.300
-0.050

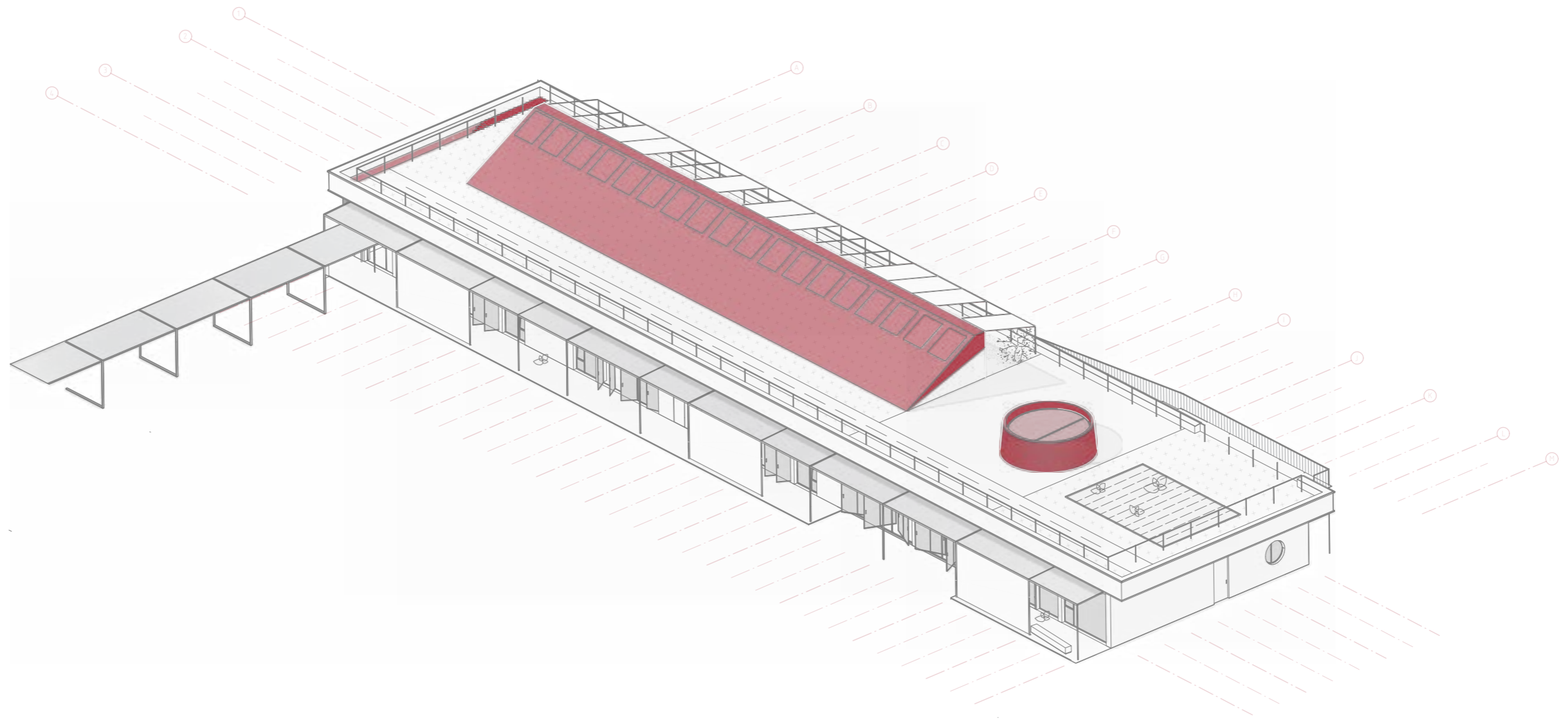
+6.600
+4.350
±0.000
-2.350



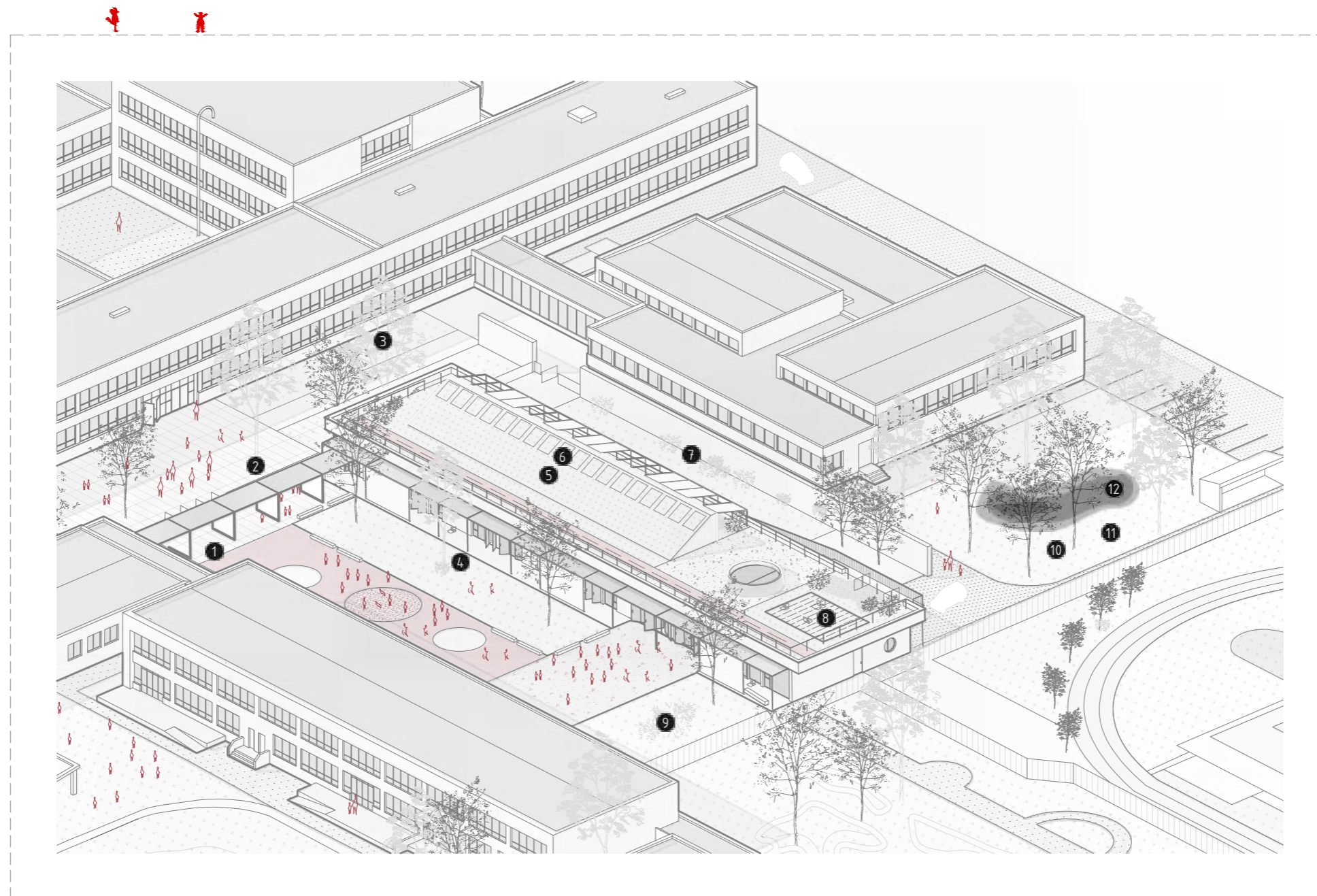
section D.D



scheme of construction



scheme of changes between study and construction



1 líniové vpusty

2 bodové vpusty

3 zachovávanie existujúcej zelene

4 retenčné ryhy

5 zelená pochôdzna strecha

6 možnosť fotovoltaiiky (or. J)

7 drevostavba

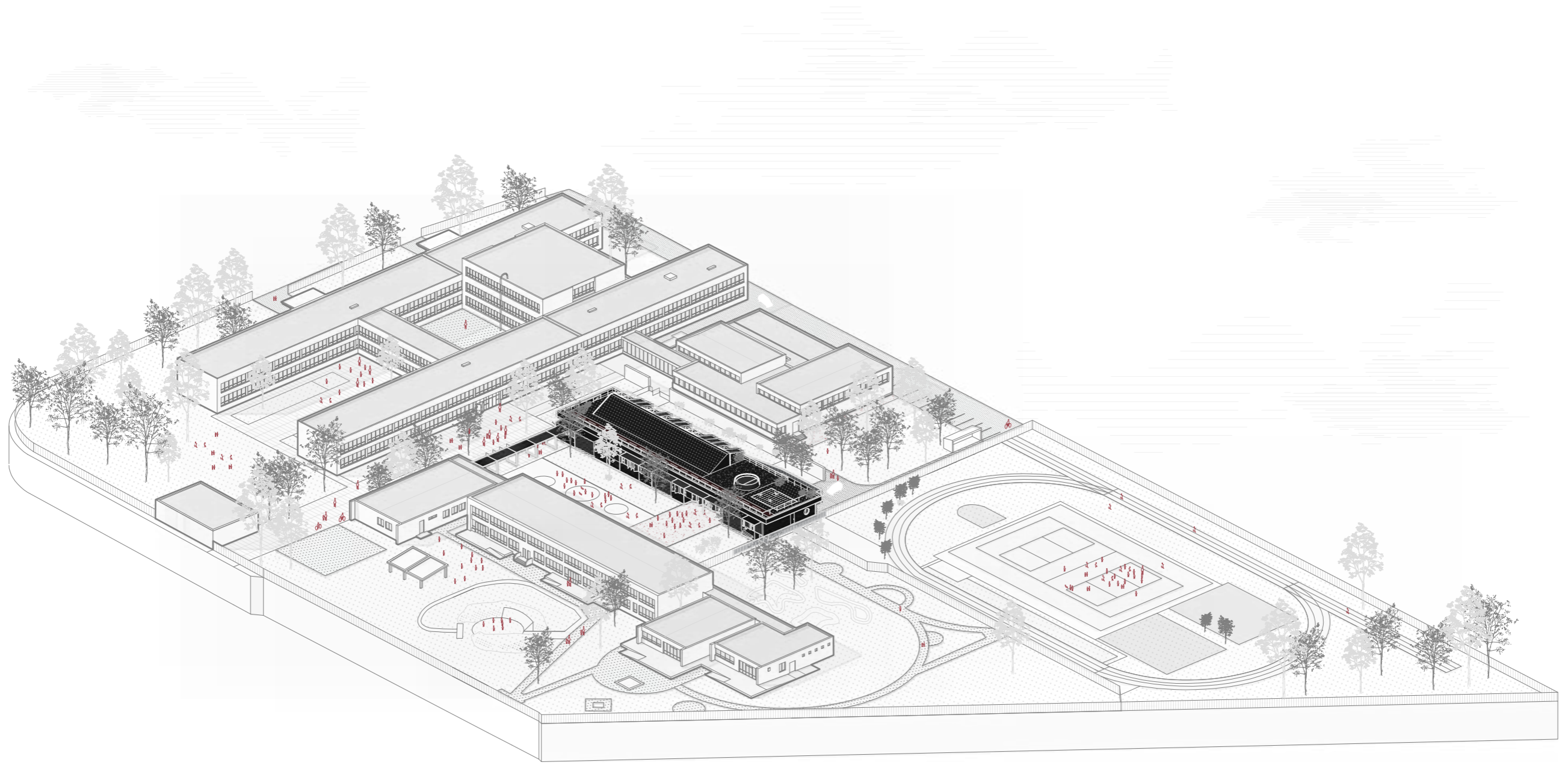
8 komunitné pestovanie

9 dažďové záhrady

10 maximalizácia vysokej zelene

11 maximalizácia nízkej zelene a nasiakavých povrchov

12 vodný prvok



axonometry



The Wheel of Time turns, and ages come and pass, leaving memories that become legend. Legends fade to myth, and even myth is long forgotten when the Age that gave it birth comes again.

/Robert Jordan



thanks for attention