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DESIGNING THE BRIEF: PRINCIPLES FOR SHAPING THE ARCHITECTURAL DESIGN CURRICULUM FOR HOUSING

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ABSTRACT

Learning to design architectural spaces intended for everyday inhabitance – houses, apartments, apartment buildings – represents one of the most important steps in the education process of an architecture student. Such a step, appropriately, demands a carefully prepared practical curriculum, and within it, an architectural brief created and curated through a valid set of parameters. This paper aims to present and further examine the principles used in creating appropriate architectural briefs for housing design studio courses at the University of Banja Luka, Faculty of Architecture, Civil Engineering and Geodesy.

Methodology of the research is comprised of juxtaposition and cross-referencing of several key influences:

- understanding of the overall students' learning trajectory, both as intended by a school curriculum, as well as observed through educational practice.
- understanding of the local and international context of housing (including the valuable collective housing heritage of Yugoslavia)
- accumulating body of educational experience acquired over the years through different types of briefs and through specific response of students to those briefs (through design proposals).

Results and further analysis dictate specific sets (clusters) of brief design: contextual range (natural to suburban to urban), topographic range (flat vs. sloped), scale (housing ensembles vs. individual houses), scope of intervention (green-field or interpolation) and type of intervention (collective vs. atomized).

Keywords: housing, architectural brief, housing heritage, architectural education.

INTRODUCTION

Formal architectural education represents quite a short period intended for adoption of a very wide set of skills. Some of the most notable of these skills include: the ability to produce accurate technical drawings (with data sets), the ability to discern converging socio-economic facts in specific contexts, the propensity towards a simple visual communication of ideas, the application of critical thinking and, above all, the ability to enter the design process for building types one has never learned at school in locations one hasn't designed in before. This required skillset is certainly meant to be accompanied by a set of knowledge (in traditional sense and form). Also, certain elements and principles of architectural design are indeed transferable from one building type to another and from one environment to another. However architectural design remains at all times an art and a craft of safely and gracefully landing on an unknown contextual (and literal) terrain, while at the same time conveying (un)certain (legible) messaging (Milić Aleksić, 2022, p 57).

In order for this design-oriented worldview to be developed the educational process needs to include several key steps, both for the sake of learned elements and acquired skills. Some of the most important of those steps are comprised of design assignments related to everyday inhabitance by human beings: houses, apartments, as well as systems, conglomerations and ensembles of these. It is beyond obvious that housing does represent one of the oldest, most common and most widespread forms of architecture, and as such it needs to be studied extensively. What might not be

obvious – and that is our contention here - is that residential architecture represents one of the foremost tools for shaping the design-thinking oriented mind. Further, our inquiry aims to arrive at specific parameters which, when adjusted, would further bolster this ability of housing curriculums to forge new architects.

The research and discussion presented herein is based and nested in the teaching practice at the University of Banja Luka, Faculty of Architecture, Civil Engineering and Geodesy, where all of the paper's authors teach in design studios dedicated to individual and collective housing, while also participating in those studios which precede and also follow the housing studios within the progression of building typologies.

THE TEACHING ENVIRONMENT AND STRUCTURE OF THE CURRICULUM

Architecture studies at the University of Banja Luka, Faculty of Architecture, Civil Engineering and Geodesy ('Faculty' proceeding forward) are guided by an official academic curriculum, which is, at the time of this writing, in its fifth year of official use (University of Banja Luka, Faculty of Architecture, Civil Engineering and Geodesy, 2018). This curriculum represents a long overdue reform. Its predecessor was structured through more strictly segregated compartments, aimed at acquisition and assimilation of specific sets of knowledge (auxiliary to design) which were subsequently expected to be applied in design tasks. These design tasks were, on their part, structured through a sequence of increasing complexity, and increasingly diverse typology: from simple (programmatically non-binding) exercises, through simple shelters, onwards to houses, apartment blocks, then to office work, leisure, hospitality and further to specialized spaces for agriculture, simple industrial facilities, transportation buildings, healthcare etc. Main limitations of this approach consisted in limited allocated time for both the knowledge application to occur, and for specific processes of design thinking to express themselves adequately (we will deal with these processes further in text).

The new curriculum placed the design studio course at the core of the educational progression. Design studio – a staple of architectural education – sets both the knowledge acquisition and knowledge application within the framework of a particular design process, thus aiming for more integration (Salama, 1995, p 77). A few examples might help the elaboration: Skills related to graphical representation and communication, otherwise (that is: in an older traditional segregated framework) developed in separate courses, in studio become a part of the design process, as well as the part of the ideas/solution presentation. Also, elements and aspects related to structural integrity, material finishes, services, plumbing (etc.) instead of being practiced on generic templates, are, in a design studio environment, practiced on one's own design proposal, (semi-)simultaneously with this proposal being conceived and drafted.

The design studio model still proved to have its limitations. Most usually, the limitations would be perceived as a lack of real-world simulations (Salama 1995, p 11) or being related to the quality of auxiliary subjects, taught through design (Hettithanthri & Hansen, p 2355). For example, by refraining from standardized templates the learning process would be prone to imprecisions. Also, the complex tasks of design process would subtract in time allocation from auxiliary knowledge, the design achievements would dominate in evaluation etc. However, seldomly is it perceived that the studio model places significant strain on the design learning as well. This strain is not acutely felt within individual studios or design assignments but is constituted on the totality of a four-year span of formal architectural education (four years in case of this curriculum, and it might be three to five in others). The strain thus consists of the limited number of opportunities for a student to engage in a (complex) design process and limited number of types of design tasks – all because of the complexity and great time portions that are allocated to individual design studio assignments. As we shall see later, the composition of the design task and design brief for housing studios needs to address this theme as well.

RESIDENTIAL ARCHITECTURE AS A DESIGN TEACHING TOOL

The aforementioned Faculty curriculum places housing/residential subjects at the second year of studies, with individual housing (a single-family house) being thought/designed in third

semester and collective housing following in fourth. While there remains a certain doubt whether a second-year student is adept enough to engage all the complexities of residential architecture (Taraszkiewicz & Taraszkiewicz, 2022, p. 220), this position in the curriculum does correspond adequately enough with the pronounced importance of housing architecture in design education. Before we proceed, however, this "pronounced importance" needs some additional elaboration and verification. There are several aspects to consider:

The first aspect to consider is that housing is the only architectural programme that practically every student is deeply acquainted with. Spaces intended for education (all manners of schools etc.) are indeed similar in that regard, but the overall length, as well as practical and emotional depth of experience of houses and apartments (both those inhabited and visited) is unrivaled. This makes residential design assignments the most solid and most rooted starting point for learning to design around complex programmes – even if student's designs (while trying to emulate the most accomplished contemporary residential architecture) for the most part in the end surpass scale, complexity and quality of spaces most students have had the experience of inhabiting.

Second, housing architecture – but almost exclusively the architecture of a (contemporary) single family house - maintains a very good balance between functional necessities on one side and expressiveness of architectural form on the other. (In case this needs additional explanation, extremes of the spectrum will prove sufficient: sacral architecture, for example, is guided predominantly with – inner and outer – form, while an industrial facility leaves little outside strict spatial-technological processes. A house escapes neither influences.) Additionally, contemporary architecture of a single-family house tends to readily express its programmatic content in its (outer) form, rarely having to perform any type of "form-content" balancing act. All this, again, makes a house an appropriate tool of design learning.

Third, these two subsequent design courses form a unique node in the progression of architectural design education. A house represents a culmination of that strand of architectural design thinking which is centered around human body and around human perception of environment. All the anthropometry studies of the early phases of education primarily converge on human abode. Individual house is the major point for this convergence. At the same time, collective housing represents a starting point for thinking about architecture in terms of systems, structures, rhythms and repetition. For students, collective housing marks the beginning of this new outlook on architecture, while still being firmly connected to individual housing and the general rules of design intended for dwelling spaces.

It is important to note (or simply to remind) that residential architecture, besides being a "useful tool" in design education is also a crucially important subject. The vast majority of architects (professionally active in domains of architectural design) are set to often deal with matters of residential architecture, either in single- or multi-family housing, either in interior or integral architectural design. This assertion stands as especially true in the context of Bosnia and Herzegovina and neighboring countries, which is the primary geographical area of interest for the faculty. It is a region whose most dominant form of architectural production are collective housing units and ensembles (Agency for Statistics of Bosnia and Herzegovina, 2025).

PARAMETERS OF A DESIGN ASSIGNMENT

Since we have introduced residential architecture as a subject of particular interest and importance in design education, by the same token we have argued for the increased attention to be given to the job of structuring the housing design studio assignments. Previous elaboration has also raised some important individual subjects, which will need to be addressed in the formation of the parameters.

It is necessary to first set a working version of a model assignment. (A separate and a more voluminous exploration is possible as to ascertain what a model design assignment might look like, but for the purposes of this paper we will simulate in on the basis of a typical one.) An assignment for a housing design studio might be defined as a formal request for a design proposal, defined by:

- A set of hypothetical users. These are most commonly, but not exclusively, inhabitants, as pertaining to the theme subject.

- Approximate intended way (and mode) of use for the requested piece of architecture. These first two aspects are what is generally referred to as a *brief*. In other words, a brief is set of requirements (predominantly programmatic and functional, often vague), but can also be described as a cluster of intended/possible scenarios of building's use. It is thus semi-specific and only defines intentions, whishes and broad limitations, while the final design proposal would be able to a form a single scenario thread out of the bundle of possibilities.
- Contextual settings. These diverge greatly, and are generally set through location and socio-economic context (or scenario). Location fans out into a very diverse set of natural and artificial factors, with both being either hard (limitations) or soft (influences).
- Processual requirements. These, to lesser or greater degree, dictate the way and the phases through which the design proposal will be guided and developed. It also defines the confines, level of detail and other requirements of the end product. It can also proscribe elements of authorship (for example by requiring a certain amount of team work etc.).
- Procedural requirements, which simply dictate timetables, deadlines, evaluation system etc.

Having by now described in general all the key elements for understanding the context of housing design studio, we can proceed to examination of the parameters which shape the design assignment. Here we propose a set of six parameters, which between them should be able to address all the previously mentioned themes and issues.

Brief flexibility. For students to be able to fully explore the interconnectedness of form and programmatic content in residential architecture, the brief must not remain too fixed. However, the residential programme generally is rather fixed. Main elements of sleeping, preparing and eating food, spending leisure time together (etc.) in most instances cannot be significantly altered (Ugljen-Ademović, 2018, p 37), however exaggerations of individual elements and additions to the basic programme should be permitted. Examples include pronounced home study spaces, home workshops or small business (for single family housing) or pronounced communal and shared spaces (within collective housing). In terms of users/inhabitants, changes which permit increased number of children in the family should be permitted but we have observed that this type of change is rarely employed by students, since the additional individual rooms rarely provide any help in terms of creating good architectural composition. Another change proved to be much more interesting, especially in individual houses: addition of a third (senior) generation, which requires the establishment of interesting new setups of both privacy and space sharing.

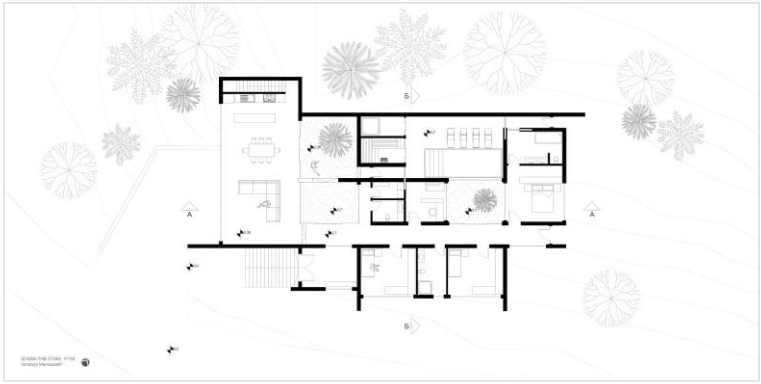

Figure1. Programme of a single-family house with pronounced elements of leisure. Although this example is still well within the bounds of a standard residential programme, it is notable how the brief complexity allows student to explore a particular house configuration with multiple inner courtyards. Student Natalija Malešević, Studio project 3 2023/2024.

Allowing for changes which transform the brief somewhat beyond housing also addresses some of the previously mentioned limitations of large design studios: even very traditional and fixed assignments (like housing) approach the realm of hybrid and became a complex design exercise.

Site selection range. This parameter is mostly related to the nature-to-urban spectrum: from houses in nature (or countryside), to suburbia, to townhouses in relatively dense city-centers. Collective housing does not have this wide spectrum, since apartment blocks are not usually intended for undisturbed nature. Also, collective housing has less educational use for this variability, due to its scale.

How is site selection important then and how is it optimized and used for design assignments? For a house design, the lessons from those different points on the spectrum are quite different: from emphasizing primary form and use of open spaces in large plots and natural surroundings to emphasizing secondary and tertiary form, privacy, efficient use of space - but also finer aspects of fluidity, permeability, dichotomy etc. (Nikezić, 2018, p.81) - in dense urban settings. Complete optimization – which would teach all or most of these lessons in a single assignment – is rarely possible, and this represents one of the major instances of limitations placed on the design education by the large design studio model and its limited number of design opportunities throughout the duration of the formal studies. One coping mechanism is for the teaching staff of the studio to gain a certain experience through year-to-year variation of the type of assignment site, with this experience then being transferred through other elements in curriculum, other than studio. However, there are other possibilities for optimization of this parameter, and they fall mainly into two options. The first one is to select sites which lie in rare and peculiar positions of interaction between dense urban fabric and relatively large elements of natural surroundings. Examples in our studio experience are mostly related to rivers (especially those with unregulated und well vegetated banks) during their run through urban settlements. The other possibility is actualized when the assignment dictates a location in nature, but mandates first a step of urban design and insists on first installing a (dense) cluster of houses, with one (or more) being later selected for further design. Thus, both sets of concerns (nature and urban related ones) are being simulated in the assignment.

Figures 2 & 3. Site selection range, from country side (left, Studio project 3 2024/2025) to diverse urban fabric (right, Studio project 4 2023/2024). The Studio project 3 location (left) features a high importance of parameter C (topographic range and variation), while the urban location of Studio project 4 features a wide variety of options under parameter E (scope of the intervention).

Topographic range and variation. While there are some interesting design avenues to be explored in differing topographic elements with regards to collective housing (cascaded patterns for example) this parameter is predominantly useful (and used) for individual housing assignments. There, when coupled with the solar orientation of the (sloped) location it has a particularly high educational potential. A sloped location accentuates the questions of (dis)continuity of the form of landscape and the architectural form. It also increases the complexity of the relations between approach, privacy and view.

The first distinction in this parameter is that between the (relatively) flat and the (more or less) sloped terrain. The second distinction is concerned with approach: descending or ascending towards the house. It is this second distinction which often carries the most complex lessons of house design, and which is thus very valuable for use in assignments. However, it is an either-or parameter as a student only designs a single house. What provides a remedy for this situation is the one aspect of design studio which we haven't addressed previously. In studio, knowledge is acquired, transferred and actually produced in multiple directions: from teacher to student, certainly from student (or work with students) to teacher, but also form student to student (Crowther, 2007). Having this in mind, certain assignments are shaped in a way for students to freely choose between micro-locations with ascending or descending approach. As a result, there are both cases within the pool of design proposals, and since students are acquainted with one another's work throughout semester, all relevant lessons become showcased.

Scale of the intervention. This parameter is mostly related to the question of whether there are urban design tasks to be performed prior to engaging in architectural design of individual piece of residential architecture. Scale however, can vary also at the level of that individual piece, especially within the domain of collective housing. In our teaching practice and research, we have not by now discovered an effective way to make a single student practice (architectural) design in significantly differing scales on a single assignment. Even the option of having differing cases within the whole of a studio (as described under parameter C) is rarely applicable, precisely because the scale acts as one of the primaries determining factors between different assignment options. One workaround tactics we occasionally employ in collective housing assignments is to allow for a segmented finish and detailing of large-scale buildings - if the primary structure by itself allows at least a minimum of this segmentation. Also, it is allowed only in cases where this segmentation is applied in horizontal plane, so as to every segment is a complete structural element (with a foundation, structure and a roof. (In other words, no division of vertical tall structures into stacked segments is ever allowed.)

Outside of the workaround described there also remains the approach of varying the assignment scale from year to year, in an attempt to gain valuable experience for the studio staff.

Scope of the intervention. The parameter of scope deals with ways in which micro-location can be treated. The three main poles within the "triangle" of options could be described in a following way:

- The micro-location represents a valuable context (either natural or built) into which the new design needs to thoughtfully insert itself with the intent of building upon the existing qualities.
- The location is so called "green field", i.e. mostly vegetated/agricultural land, but without prominent features which would make the case for their preservation or integration into the design. In terms of the logic of assignment creation, many "brown fields" would be included into this category (and certain brownfields would fit the category 1).
- The micro-location is in certain ways rich and complex but should/will be disregarded, and the new state of things would be established in place with the design proposals. This is the usual (almost a caricatural) scenario of a lively poor neighborhood being replaced with a new real estate development, and as such it is an extreme (a "pole" in this elaboration) and is rarely employed in pure form in assignments. It is also different from most cases of "brown field" described under 2, in that it often values the context right outside of the perimeter of the space intended to be ignored (or "razed").

The usual approach regarding this parameter is to favor that location which offer some level of overlap between the three described poles. Within such a setup, students individually choose which scenario and pole to more closely pursue. Still, it is highly valuable to always have some level of pole 1 in many assignments, and not necessarily in order for students to deal with valuable features on-site, but more in order to introduce some "hard" (unchangeable, un-negotiable)

limitations into their design calculus. Also, as Allen notes, "Working with and not against the site, something new is produced by registering the complexity of the given" (Allen, 2009, p 216).

CONCLUSIONS

Education in the field of architectural design is predominantly carried within a course setup called design studio. It is the case in many institutions of higher education throughout Europe, North America and other parts of the world. Since the introduction of the new teaching curriculum for architecture studies in 2019 it is also the case at the University of Banja Luka, Faculty of Architecture, Civil Engineering and Geodesy, where this research (with its underlying teaching practice) was based. The main premise of this paper was that, for students, learning to design within the field of housing (from individual to collective) represents one of the most important steps in becoming steeped in architectural design overall. As such, this important step would need a carefully shaped curriculum, which would reflect these wider design considerations, while also addressing even some limitations of the design studio educational model. More narrowly, this curriculum would ideally need to be year-to-year (consciously and intentionally) adjustable with regards to every major factor of the architectural design assignment: users, intended way of use (these two roughly constitute what is known as a brief) and contextual settings.

Our paper determined five major parameters of curriculum composition, together with options for their adjustment. These parameters include: brief flexibility, site selection range, topographic range, scale of the intervention and scope of the intervention. Some of the parameters proved to be relatively easily adjustable in a way which offers more design lessons within a single semestral assignment (for example, site selection). Others needed more complexity in order to deliver good teaching outcomes (for example expanding the brief beyond simple housing), while some parameters remained an either-or option, only allowing for expanded design lessons to be obtained indirectly (by relying on previous years' results). This paper certainly does not exhaust all the possible parameters and there also remains a promising area of research on the role of housing in architectural design education, especially if elements of time separation are brought between courses on individual and collective housing or if certain (housing) elements of the curriculum appear cyclically.

DECLARATIONS OF INTEREST STATEMENT

The authors affirm that there are no conflicts of interest to declare in relation to the research presented in this paper

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