

TEACHING WHOLENESS IN ARCHITECTURE EDUCATION: ADVANCING CHRISTOPHER ALEXANDER'S TEACHING LEGACY THROUGH THE BUILDING BEAUTY PROGRAM

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Abstract. Architect, builder, and professor Christopher Alexander focused his life's work on trying to understand what makes the physical environment beautiful, and how beautiful environments can be created today. Through careful research, innovative teaching, and unorthodox professional practice, Alexander formulated a unified vision of the physical environment based on a theory of "wholeness." He observed that achieving beauty and wholeness in the built environment – as well as teaching it – requires the integration of processes and considerations that are usually kept separate: integrating form and function, integrating teaching and practice, integrating design and construction, integrating projects of various scales, and integrating all of these within the ongoing search for how beauty and wholeness might be reached, taught, and proliferated.

Alexander explored and developed ways of implementing these observations throughout his decades of teaching at the University of California at Berkeley, culminating in the Building Process Area of Emphasis, which he founded with his colleagues in 1990. His former students from this period, together with new partners, established "Building Beauty" in 2017, a post-graduate program in architecture that continues to teach and expand upon Alexander's theories and methods of generating beauty and wholeness in the physical environment.

Keywords: Christopher Alexander, Building Beauty, wholeness, beauty, architecture education, architecture school.

Introduction

This article explores the evolution of Christopher Alexander's teaching method, reviewing it from its initial development at the University of California at Berkeley, to its current incarnation as the international post-graduate architecture program "Building Beauty". This teaching method was initially developed in response to the fundamental changes that architectural practice and education underwent in the mid-20th century with the transition away from the Classical and Beaux-Arts traditions, the rise of Modernism, and the subsequent decline of beauty as an important attribute of creating buildings. Alexander's life work was dedicated to discovering and developing methods that would still make it possible to create beautiful environments in our own time, independent of questions of architectural style.

Alexander pursued his vision through three complementary activities: as a theorist publishing books, as an architect and builder making buildings, and as a teacher

working with students. While much has been published about his theoretical work, and some has been published about his work as an architect/builder, little has been published about his work as a teacher. This article aims to narrow this gap by focusing on Alexander's teaching methods and how they have since been continued and adapted in the recently established post-graduate architecture program "Building Beauty."

1. Christopher Alexander's teaching approach

1.1. The quest for wholeness

Christopher Alexander's lifelong interest was to discover what lies behind the universally recognized beauty of historical buildings and traditional places throughout the world – places such as the Parthenon, the Alhambra, Angkor Wat, Chartres Cathedral, Isfahan, Venice, Jaipur, Kyoto, and countless other lesser-known vernacular buildings and traditional villages. Such places attract fascination and

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admiration from people of all cultures and all walks of life. But what is it that makes them so beautiful? And what would make it possible to build something of such quality in the present day?

Through a lifetime of careful study, innovative teaching, and unorthodox professional practice, Alexander has formulated a unified vision of the physical environment based on a theory of “wholeness” (Alexander, 2002). He proposed that beautiful places have a functional and geometrical order that creates an overall coherence to which humans positively respond. At the same time, such places also have a functional ease, where spaces have been subtly adapted to work better for people, making them “living” places that foster deep comfort and a sense of belonging. Such environments can be felt as being deeply integrated with their context, their culture, and their people; they are in harmony with their particular place on earth. Alexander’s observations have been laid out over a series of 15 books, such as *A Pattern Language* (Alexander et al., 1977), *The Timeless Way of Building* (Alexander, 1979), and his magnum opus, *The Nature of Order* (2002–2005). In parallel, his quest to create beauty in practice led to the completion of more than 100 buildings with his professional office, The Center for Environmental Structure (CES).

The focus of Alexander’s work, in practice as well as in teaching, was on quality and process: how can we create environments with more wholeness or “life”? How can we create a more beautiful world, a world where we can each feel a deep sense of belonging? This approach differs from mainstream architecture education with its focus on the architectural product, with the image or conceptual meaning it conveys, or its myriad practical or structural considerations. Instead, Alexander’s primary focus was to create places that are harmoniously connected to their unique sites as well as to the deep needs of the building’s occupants. This integration of “healing the site” and “meeting the needs of people” drove every project. At the same time, Alexander’s approach is also different from that of reviving older architectural traditions: although he greatly admired them, he viewed their successes not only as being due to the beauty of their forms, but mainly as a result of the process by which these forms had originally been arrived at and applied in practice. It was this underlying process that Alexander dedicated his life to discovering and teaching. In Alexander’s own words:

For it is not the style that makes a building living or dead, but the freshness of its response to its surroundings; the truthful and spontaneous unfolding of order within its own fabric (Alexander, 2005, p. 22).

Life is not only social but also, necessarily geometrical. Life will come about only when each response is fresh, and each moment in the responding process truly builds something new and unexpected from a profound response to whatever whole existed just before. This too, will be visible in the geometry, in the design (Alexander, 2005, p. 22).

1.2. Integrating what is usually separate

Alexander’s teaching career was an inherent part of his quest for wholeness. Through his almost 40-year tenure at the University of California at Berkeley, he taught and influenced hundreds of students by engaging them in his search to understand and create beauty. In doing so, he developed and utilized teaching methods and design processes that were largely innovative. At their core was the observation that achieving wholeness would require the integration of processes that were usually kept separate: integrating form and function, integrating teaching and practice, integrating design and construction, integrating work on projects at various scales, and integrating all of these within his ongoing research of wholeness and the means to achieve it. By unifying his teaching with both his academic research and his professional project work, Alexander created a learning environment for students and colleagues that was deeply integrated on all levels.

To implement these observations, in 1990, Alexander with colleague Hajo Neis and others, launched the “Building Process Area of Emphasis,” a program of study within the Department of Architecture at Berkeley. Neis describes the new area as follows:

The “Building Process” arose as a new direction in architectural education, practice, and research from a need to give new life and meaning to the profession and to the teaching of architecture. This new meaning has at its heart the investigation, development, and implementation of processes of design and making which explicitly attempt to create a “living” architecture in the structure of the environment, and which create for us and in us a “sense of belonging” (Neis, 1995, p. 271).

Neis describes the nested curriculum and teaching in the Building Process Area:

The curriculum of the Building Process Area can be illustrated in a concentric diagram with several layers of progressive learning (Figure 1). This diagram is formally similar to the diagram developed by the Bauhaus in the 1920s, but differs with regard to the contents and the emphasis on process and new process. The outer core, or entry, is formed by a lecture series on *The Nature of Order* [Alexander’s four-volume book series] in which students learn the theory of profound quality, theory on processes which generate quality, and theory of building implementation. At the inner core of this diagram is the Atelier and New Process, in which students learn to apply structure and process in real world projects and explore new processes necessary for the success of the project (Neis, 1995, p. 277).

The Integrated Design Studio class also sought to integrate work on projects of various scales. As described by Neis:

[It] prepares students for a complete and integrated picture of the environment as an unbroken whole,

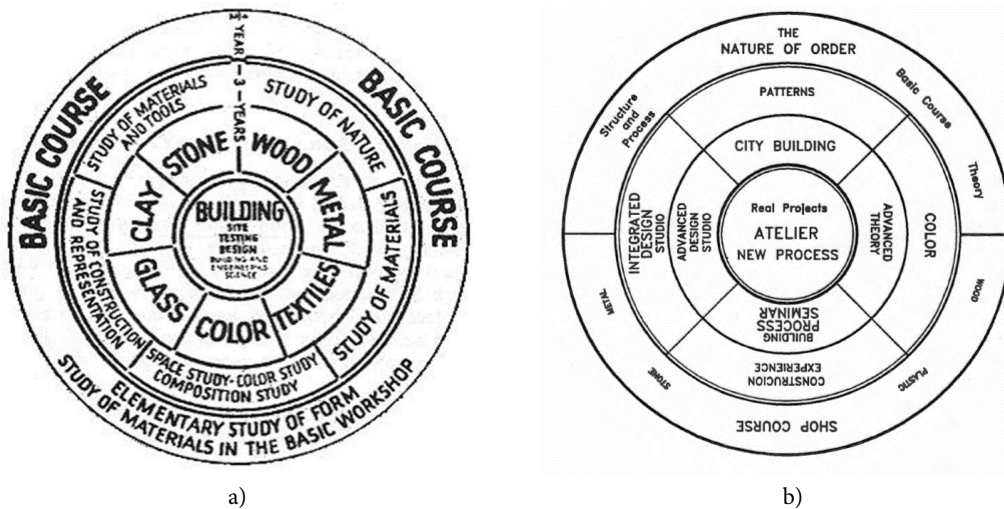


Figure 1. Concentric diagrams illustrating architectural study curriculums: a – the Bauhaus in 1921 (Wingler, 1986); b – the “Building Process Area of Emphasis” at the University of California, Berkeley in 1990 (Neis, 1995). Both curriculums are based on progressive layers of learning

in which each act of construction small or large, increases the life of the whole. The course has, at the root of its purpose, the education of architects in such a way that they are intimately involved in craft and construction, and also deeply involved in the large scale aspects of urban planning, urban design, and urban development (Neis, 1994).

To achieve this, the Integrated Design Studio class was comprised of five projects, ranging in scale from small to large: A Small Ornament, A Piece of Furniture, A Small Urban Element or Furniture, An Individual House, and A System of Rules for a Neighborhood. The emphasis for all five projects was on integrating design and construction into one iterative process from beginning to end, with the aim of creating places and objects that are beautiful and deeply connected to their environments.

As part of Alexander’s innovative integrated approach, his teaching, research, and professional practice were interwoven and inseparable from his entire professional vision: to understand the underlying structures of what makes good environments, and to define and invent processes that can create and further unfold beauty and wholeness. For Alexander, the main task was to advance the theory and the professional work forward as best as possible, combining work with students, colleagues, and clients, and tapping into each person’s individual strengths. As a result of this approach, more advanced studio courses were often titled “Professional Apprenticeship,” or “Professional Atelier,” and might include collaboration with Alexander’s colleagues in his professional office, the Center for Environmental Structure (CES).

Yodan Rofè, who studied and worked extensively with Alexander in the 1990s, describes his experience as follows:

One unique aspect of studying with Alexander, and working on real projects for real clients, was the sense that one was working with him, searching

together for solutions to the problems presented by the projects. Yes, Alexander would have often framed the question by setting the task to be performed at each point, but the search for a solution was a mutual search, and the solutions did not always come from him (Rofè, 2022).

Following Alexander’s retirement and Neis’ involuntary departure from Berkeley, the Building Process Area of Emphasis was dismantled in 2000. However, many of the Building Process Area’s former students, who were by then scattered across the globe, started to reconnect through participation in international conferences and workshops. In 2005, a group among them established the Building Process Alliance (BPA), with its associated listserv group, the Building Process Network (BPN). This group, which included Kyriakos Pontikis, Hajo Neis, Susan Ingham, and other colleagues including Christopher Andrews and Yodan Rofè, formed the foundation for what later evolved into the Building Beauty post-graduate program in architecture.

2. The Building Beauty program

The Building Beauty post-graduate program in architecture is dedicated to teaching architects, builders, and makers to create life, beauty, and wholeness in the world. Based on the theory and practice developed by Christopher Alexander, its fundamentals are the unity of geometry and function and the importance of the act of making in the process of building beauty in the world. Building Beauty was founded by a core team of former students and collaborators of Alexander’s, but in the spirit of his original teaching environment, they too welcomed other collaborators who resonated with his ideas and added their own contributions to this new program.

The formation of Building Beauty was initiated in the mid-2010s, when Sergio Porta, who is not a former student

of Alexander, approached him and his wife, Maggie Moore Alexander, and inspired in them the idea of starting up an architecture school that could further Alexander's quest. By 2017, this has led to the establishment of the Building Beauty Program, located in Sorrento, Italy. This program builds on the foundation of the Building Process Area of Emphasis, creating a unified learning environment where the emphasis is on creating beauty through the integration of design and construction (including offering some of the same courses), while also adding other areas of exploration within its overall pedagogy.

2.1. A study program on-site and online

The Building Beauty program was deliberately established in one of the most beautiful areas in the world – the city of Sorrento, on the southern edge of the Gulf of Naples across from the city of Naples and close to the Amalfi coast (Figure 2). The program is hosted in the Sant'Anna Institute, a former convent and school, which today houses several study abroad programs and is dedicated to teaching Italian language and culture education for visitors as well as locals. The institute as a whole, and its garden in particular, provide the main learning site as a real-world case study of the Building Beauty program.

Building Beauty was initially established as a one-year architecture program. It is open to architecture graduates as a post-graduate program, and to architecture students as a study abroad year within their regular studies, through academic cooperation with the University of Hartford in Connecticut in the US. Additionally, the program is open to participants from a wide range of other fields who find an affinity with its aims and values. This has so far included builders and craftspeople, people from the humanities, sciences, and the arts, as well as community leaders. From its inception, the program has been very international, attracting students from India, Iran, Europe, South Africa, Puerto Rico, and the US to come to study in Sorrento. A specific learning track was established for software developers, an area of knowledge that has found particular

value in Christopher Alexander's thinking. The Building Beauty program as a whole is beginning to expand to provide two years of study, with the aim of eventually becoming a complete architecture program.

At the onset of the pandemic in 2020, Building Beauty temporarily halted its activities in Sorrento and began operating as an online program delivered via Zoom. This has made it readily available to students worldwide without requiring them to relocate to Italy, including students in India, Iran, Armenia, Kenya, Israel, Egypt, Turkey, South Africa, Estonia, Poland, Czechia, Austria, Sweden, Germany, the Netherlands, Italy, the UK, Brazil, Peru, Mexico, and the US. Accordingly, instead of working on predefined projects, the program's building projects were now defined and executed by the students themselves, in their respective home environments and communities.

2.2. The program's curriculum

The Building Beauty curriculum builds on the teaching principles and methods it inherited from Christopher Alexander, which it reinterpreted and restructured around three interweaving aspects. These aspects refer to the "Having," "Doing," and "Being" of learning to generate beauty in the world. The first aspect focuses on the knowledge students need to gather and "have" in order to engage in the generation of beauty. It involves studying the theories that underlie the program – primarily Christopher Alexander's *The Nature of Order*, as well as other theories that support and resonate with it. The second aspect focuses on the work that students need to "do" in practice in order for this knowledge to be absorbed and become actionable. This involves designing and building projects in the real world by following the principles learned. The third aspect supports the students' process of "becoming" the kind of people who are inherently able to generate beauty in the world. It involves discussions and seminars that bridge the theory and the practice and assists students' personal growth as they do so. The following describes these three aspects by presenting the program's main courses.



Figure 2. View of Sorrento, Italy, with the Sant'Anna Institute perched on top of the cliff above the Marina Grande

The “having” aspect: knowledge of theory – The Nature of Order

The central course of the “having” aspect is *The Nature of Order*, which forms the theoretical backbone of the Building Beauty program. Based largely on the Nature of Order course that was previously developed in the Building Process Area, students go through an exploration of the essential elements of Christopher Alexander’s Magnum Opus *The Nature of Order*. The magnitude of the spectrum covered in this remarkable work offers students the opportunity to engage in a large reflection on the essential elements that come into play in making, at all scales.

The course is a reading seminar with two weekly meetings. One meeting is a closed session for course participants, and the other meeting is a webinar that is open to the general public. In the closed sessions, students alternate in presenting chapters they choose to read in non-linear order, and there are home and class exercises in order to clarify and learn to work with the theoretical concepts. The webinar sessions, which are open to the public, are either led by Building Beauty faculty or feature presentations by guest lecturers on topics that are related to the topics discussed in the chapters, followed by an open moderated discussion.



Figure 3. Ceramic pots made by Building Beauty students under the tutelage of master ceramicist Pasquale Liguori. By making an object hands-on, students are guided to discover how personal feeling can become an integral part of the design process

The “doing” aspect: design and construction experience – The Building Beauty Studio

The main course of the “doing” aspect – and the core of the program – is the Building Beauty Design and Making Studio (“BB Studio”). The BB Studio provides students with a hands-on experience to explore the process of designing and making real objects and places with feeling. It lays the foundation for a single integrated view of design, building, and planning, which extends from the smallest parts of the make-up of buildings to the largest parts of cities. Through this progressive series of projects, the purpose of the BB Studio is to prepare students for a complete and integrated picture of the environment as an unbroken whole, in which each act of construction, small or large, increases the life of the whole.

Drawing on the format of Alexander’s Building Process Area, the BB Studio consists of four projects that gradually increase in size and scale, as well as progressively introduce additional tools to the design process. The first project is to design and make a personal object or ornament, and it captures the whole approach of Building Beauty in microcosm: its central purpose is to discover the existence of feeling in physical objects and what it takes to make such an object (Figure 3).

The second project is the making of a piece of furniture. Here, the issue of feeling is combined with the practicalities of constructing a useful object for one’s home, such as a bench, a small table, a stool, a toy box, a screen, a lamp, a bookcase, etc.

In the third project, the scale is expanded to the design of a house for oneself and one’s immediate family, with an emphasis on the reality of the project. It draws on principles explored in the other courses, and implements considerations of “centers analysis,” “design patterns,” and follows an appropriate “design sequence” so as to create a house design that is in harmony with both the site and the deep needs of its inhabitants (Figure 4).

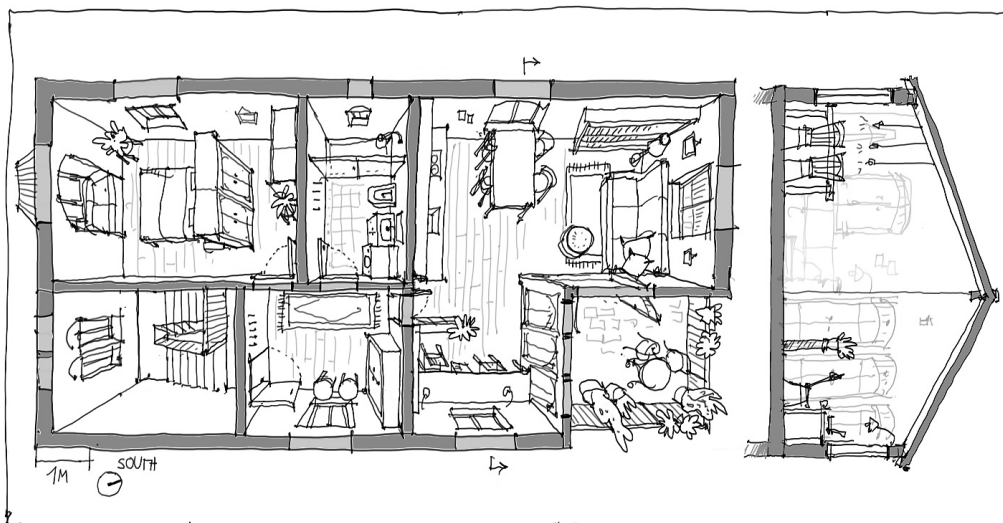


Figure 4. “House for Oneself” project by a Building Beauty student, 2018. Designing a house is an exercise for combining personal feeling with practical considerations



Figure 5. Building Beauty students design and construct a large bench in the garden of the Sant'Anna Institute, Sorrento, Italy, 2018. Working together on a joint project is a living laboratory for distinguishing between aspects of feeling that are individual and aspects that are humanly shared – and for learning to focus on the shared aspects when engaging in a design process

Finally, the fourth project is the Integrated Design and Construction Project, whose main purpose is to have students engage in physically building something positive in the real world, which increases the life of a particular place. This project expands the lessons from the previous three to add the considerations of full-scale construction and of working with other people – for whom and with whom the project is to be built.

The four projects of the BB Studio take different forms depending on whether the program is on-site in Sorrento or online. In Sorrento, the ornament project is done with local master craftsmen, the house for oneself is developed on local sites, and the design and construction project is developed in the garden of the Sant'Anna institute, and is done as a team consisting of all Building Beauty students in collaboration with local traditional builders (Figure 5).

In the online version of the program, each student works in their own home environment, and they are encouraged to engage additional partners and local craft-people in their execution, according to the needs of their selected project. Through this process, students learn to become resourceful leaders in bringing people together to generate beauty and wholeness in their local communities.

The “being” aspect: becoming a creator of beauty – Self & Wholeness

The Self & Wholeness course was created at Building Beauty in order to provide a bridge between the theory of *The Nature of Order* and the practice of the Design and Making Studio. Its underlying themes were present throughout Christopher Alexander's writings and worldview, and while they were implicitly present in his work with students, they were never an explicit part of his teaching program. One purpose of this course is to provide a support structure for students as they struggle to implement their theoretical discoveries within the studio

class, and as they grow to embody them on a personal level. The second purpose of this course is to provide additional grounding in Alexander's principles as they arise in the work of other thinkers in other fields.

At the heart of the course is the notion of “Wholeness” as it arises in multiple disciplines, including architecture, physics, philosophy, neuroscience, and biology. Wholeness is explored as more than an external phenomenon that is separate from us, but as a potentially inseparable aspect of ourselves and the subjective experience of “Self” beyond individual identity. It provides the foundations for becoming able to access one's universal sense of Self, and to use it as the source for generating Wholeness in the world.

3. Impact and results of Building Beauty

The purpose of the Building Beauty program is to teach many tools and techniques, including those of Alexander's as well as newly developed ones, in the attempt to create beauty in the physical environment. In doing so, the aim is to heal and inspire the community of people who participate in this process – as well as those who come in contact with its results.

3.1. Building Beauty on-site

During the first two years of the program's existence, its major learning context was the garden of Sant'Anna Institute (Figure 6). This is the place where programming and visioning, site analysis, design, and building come together. The garden, tended and cultivated, but rather underused by the institute's staff and students, is the focus of each year's work. Since the program's inception, its vision has been to gradually transform this garden, in cooperation with the Sant'Anna Institute, into an integral part of the learning community that inhabits the institute.

The first class of Building Beauty, in 2017–2018, engaged in generating an overall vision for the rejuvenation of the garden over the following years (Figure 7). In addition,



Figure 6. Aerial view of the Sant'Anna Institute in Sorrento, Italy. The added white outline demarcates the boundaries of the garden where projects are designed and built



Figure 7. A 1:50 working model of the Sant' Anna Institute and its garden, 2018. Created and used by Building Beauty students instead of a typical master plan, it provided a means of assessing the feeling and impact that each proposal had on the overall place

students took upon themselves the realization of the pilot construction project: a large stone bench at the intersection of the institute's entrance area and the more secluded garden (Figure 8).

Working on it as a joint team, this project provided students with an opportunity to directly apply Alexander's principles in practice, with the help of local masters who provided knowledge in traditional construction methods.

Here are the students' impressions as expressed in that year's "Learning Journal" on the Building Beauty website:

Through our work on the bench, especially from mockups to realization, the meaning of beauty began to shine through. As our work progressed, we gradually realized that there truly is such a thing as wholeness, that it's something real and tangible, not just a theoretical concept... But this level of understanding only emerged from an active engagement in the act of building, and the physical act of building is where it can make the most meaningful difference in the world. (Building Beauty, 2018)



Figure 8. The process of designing and making the bench in the Sant'Anna garden, 2018. Left to right: Sketches with feeling; small models; 1:1 mock-ups to determine heights and sizes; and the finished bench and fountain in place



Figure 9. Projects of the second class of Building Beauty, 2019. Continuing the revitalization of the Sant'Anna garden, this group of students designed and built a large wooden pergola as well as a nearby small bench



Figure 10. A view of the small bench from under the pergola, 2019. It looks like it has always been there

The second class of Building Beauty, in 2018–2019, continued to develop the garden in further detail. Focusing on the middle of the garden this time, they designed, rebuilt, and expanded a dilapidated large pergola so as to generate an inviting gathering place in the heart of the garden (Figure 9). In addition, their work extended also to the far edge of the garden, where they built another stone bench, which provided a destination to one of the garden's paths and blended with its vegetation (Figure 10).

3.2. Building Beauty online

The transition of Building Beauty into an online program since 2020 allowed it to greatly expand both its reach and its impact. It made it accessible to professionals in various fields who couldn't afford to take a year off their busy schedule, but who were thrilled to integrate this learning experience with their regular lives in their home environment (Figure 11). This included dozens of students from around the world, who formed together a lively community of learners that shared the process of bringing wholeness and beauty to their homes and communities.



Figure 11. Furniture project by a Building Beauty student, 2021. By designing and building their own furniture, students learn how to integrate feeling and practical considerations in a design project

Starting from relatively modest scales at first, the students' impact continues to expand as they dare to implement what they have learned in the program at ever larger scales, and to engage other members of their communities in doing so (Figure 12). In support of this task, Building Beauty inaugurated its Atelier course in 2021, where students who took the first year of studies take on ever larger-scale projects in their local environments, and meet regularly to receive guidance and support as they continue to learn how to implement the program's principles in practice.

Building Beauty's plan for the near future is to resume its operations in Sorrento and to continue to rebuild the garden of the Sant'Anna Institute along with future classes of students. As the program continues to grow, its vision is to step beyond the Sant'Anna garden to work in the city of Sorrento and its nearby area, as well as forming Building Beauty outposts in additional locations around the world: places where there is a site that calls for regeneration as

well as dedicated people around which a community of Building Beauty learners can be formed.

Conclusions

Christopher Alexander's lifelong quest for wholeness is mostly known for the books he published, as well as for the buildings he built as part of his ongoing exploration of how to build beautiful places in our time. Yet an inseparable part of his quest was to find out how to educate new generations of architects, builders, and community leaders to create environments that are inherently "living." This pedagogical knowledge has so far lived on mostly in his former students who have experienced it themselves. With the establishment of the Building Beauty program, it is now available again to a new generation of students, and continues to grow and expand with the inclusion of new partners and researchers who share its vision.

As this article has outlined, the core of this educational vision is that to reach "living" qualities of the built environment, such qualities need to be infused in the very processes that lead to their eventual results. Wholeness, beauty, and life cannot emerge on their own from a pre-developed plan, but must be cultivated and present throughout the process that leads to them. This means that reaching them requires to primarily transcend the cultural habit of separation, which sets apart theory vs. practice, form vs. function, design vs. construction, education vs. practice, or even people vs. the environment. In contrast, Alexander's vision of teaching wholeness, as now implemented in the Building Beauty program, is their integration into a seamless whole.

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a)



b)

Figure 12. Final independent project by a Building Beauty student, 2023: a – model of a vision for enhancing community life in a suburban street; b – mockup and material tests for the first phase of construction. The project is developed in coordination with the street's residents

References

- Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., Fiksdahl-King, I., & Angel, S. (1977). *A pattern language: Towns, buildings, construction*. Oxford University Press.
- Alexander, C. (1979). *The timeless way of building*. Oxford University Press.
- Alexander, C. (2002). *The nature of order: An essay on the art of building and the nature of the universe* (Book 1: The phenomenon of life). Center for Environmental Structure.
- Alexander, C. (2005). *The nature of order: An essay on the art of building and the nature of the universe* (Book 3: A Vision of a living world). Center for Environmental Structure.
- Building Beauty. (2018). *2017-18 Learning Journal*. <https://www.buildingbeauty.org/learningjournal>
- Neis, H. (1994). *The building process: Towards a fundamental revision of architectural education* [Unpublished paper].
- Neis, H. (1995). The new building process: A new direction in architectural education. In *ACSA European Conference Proceedings* (pp. 271–278), Lisbon, Portugal. <https://doi.org/10.35483/ACSA.Intl.1995.52>
- Rofè, Y. (2022). *Personal communication*.
- Wingler, H. M. (1986). *The Bauhaus*. MIT Press.