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Architectural Sketching: Composing Architectural Forms using Geometric Bodies

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Abstract: This article explores the significance of geometric forms in architecture, their application in composition, and methods to achieve harmony and dynamism through their arrangement. By analyzing historical and contemporary examples, this study highlights how geometric abstraction continues to influence architectural thought and practice, demonstrating the enduring relevance of these fundamental shapes in contemporary design.

Keywords: architectural composition, geometric forms, spatial organization, symmetry, modularity, computational design, volumetric articulation.

Introduction:

An architectural sketch is a drawing that provides information about an object's dimensions, shape, and construction. It must be executed in accordance with the principles of descriptive geometry. All stages of technical drawing and design work include croquis (from the French *croquis*, meaning "to sketch"—a quick drawing that captures the most characteristic features of a painting, sculpture, or architectural work, usually done in pencil), measurement, sketching, working drawings, and exhibition drawings. In the first year of academic education, it serves as a tool for demonstrating acquired graphic skills and developing compositional abilities.

Literature review and methodology:

During the development of a project assignment, an architectural sketch and an architectural drawing are created. An architectural sketch is a visual form of project exploration, serving as a method for expressing and refining a creative concept in a freehand graphic style. An architectural pencil drawing refers to any depiction of an architectural work. The subject of an architectural pencil drawing can carry an independent meaning, and in some cases, it may even be classified as an independent form of art—easel graphics. For an architect, mastering sketching and pencil drawing is essential. A high level of graphic proficiency enables the effective communication of a professional concept, conveying the "idea" of the designed object more comprehensively during its initial stages of development. Furthermore, smoothness in architectural pencil drawings is crucial for depicting environmental details accurately, ensuring that the architectural object maintains realistic proportions and establishes a harmonious connection with both humans and nature.[1]

The 18th-century French philosopher Denis Diderot once wrote: *"A country that teaches drawing as it teaches writing will soon surpass all others in art, science, and craftsmanship."* Today, architectural drawing is no longer regarded merely as a professional means of communication or a "language" of dialogue between the architect, executor, and consumer.

[1] Lomonosova, M.G. *Graphics and Painting.* Moscow, 2003. – 207 pages.

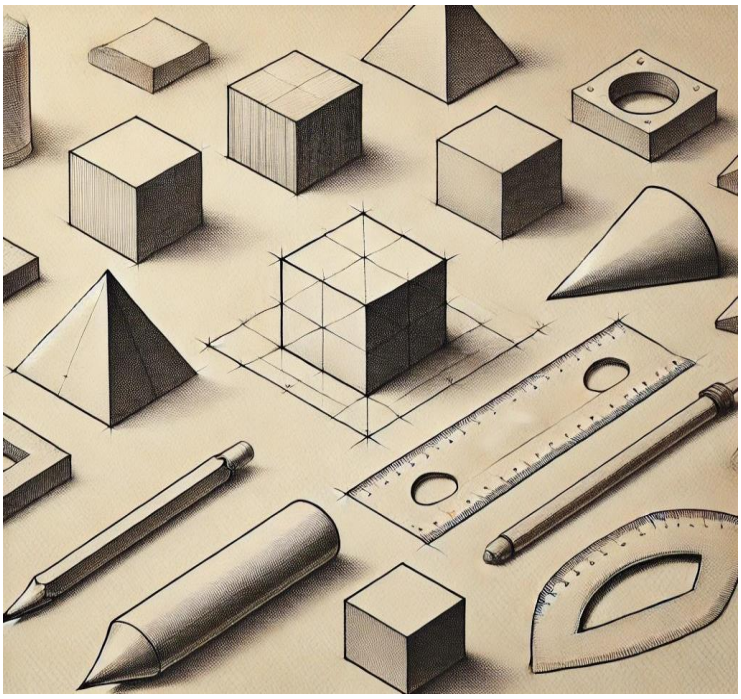
Instead, it is interpreted as one of the fundamental tools of the creative process. The goal of architectural education is to prepare students for active creative practice.[2] In the cultural system, architecture holds a distinct position, with one of its primary roles entrusted to the architect—the creation of beauty. However, to create beauty, the architect must be able to *see* it, internalize it, and effectively translate it onto paper.

To work successfully in architectural graphics, one must develop the ability to see the world through the eyes of an artist, notice the extraordinary in the ordinary, and cultivate both keen observation and dedication. Mastery of pencil drawing is essential for an architect to successfully complete any project assignment. A high level of skill in pencil drawing is one of the key quality criteria for the professionalism of future architects. A distinctive feature of architectural graphics is the combined use of two visualization methods—pencil drawing and technical drafting.

The integration of these techniques in architectural drawings enhances their informational content, making it easier to assess the chosen architectural solution and implement it in real-life construction. Each form of visual art has its own unique means of depiction, including the materials used. In architectural projects, the numerous methods of representation can generally be categorized into linear, tonal, chiaroscuro, and polychrome techniques, where line, tone, light and shadow, and color serve as the primary visual elements. In black-and-white architectural graphics, the fundamental artistic tools include points, hatching, and the contrast between black and white.

Results:

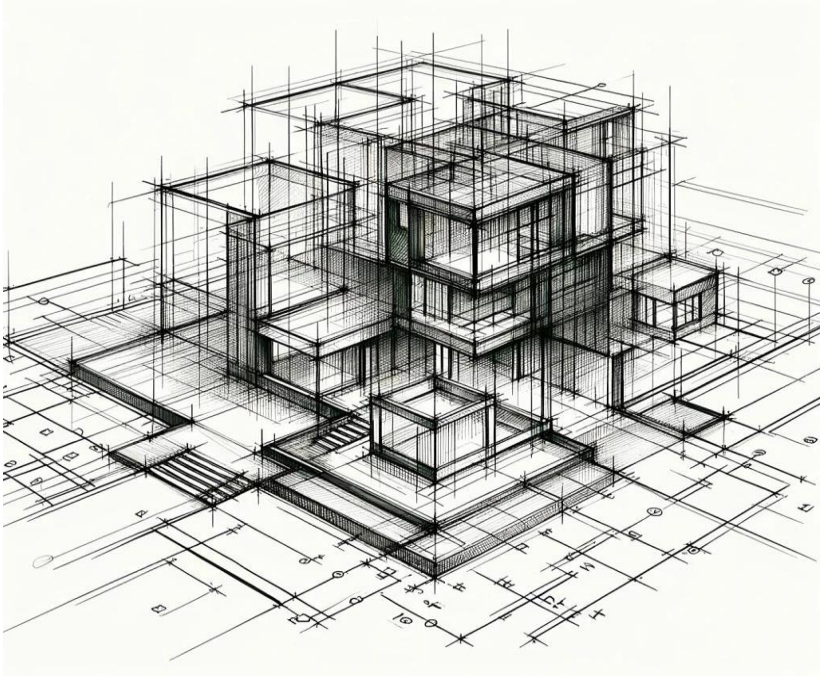
In the education system, learning to draw begins primarily with sketching various geometric shapes. For this purpose, it is most effective to use wireframe models of these objects. Beginners in drawing should start by depicting three-dimensional objects with simple forms, such as a cube. To facilitate this process, it is recommended to place a wireframe model alongside a plaster model of the same size. This approach allows the invisible parts of the cube to be clearly seen, helping the artist to better understand and accurately represent its structural form.



Architecture, as a discipline, has long been intertwined with geometry, utilizing its principles to construct spaces that are both functional and aesthetically pleasing. Throughout history, architects have relied on geometric bodies to establish order, proportion, and spatial coherence in

[2] Tursunov, Sh. Sh. (2023). The Integration of Architecture and Monumental Art in the Artistic Solution of Urban Planning. Construction and Education, 1(3), 49-53.

their designs. From the rigid symmetry of classical temples to the fluid organicism of parametric architecture, geometric forms have served as a universal language in the built environment. The manipulation and combination of basic geometric bodies allow architects to create compositions that exhibit balance, rhythm, and structural efficiency. Understanding the principles governing these forms is essential for architects and designers seeking to develop innovative spatial solutions while maintaining coherence and visual harmony. As contemporary architecture embraces digital technologies and computational design, the role of geometric bodies in composition remains a central tenet, bridging the gap between mathematical precision and artistic expression.[3]



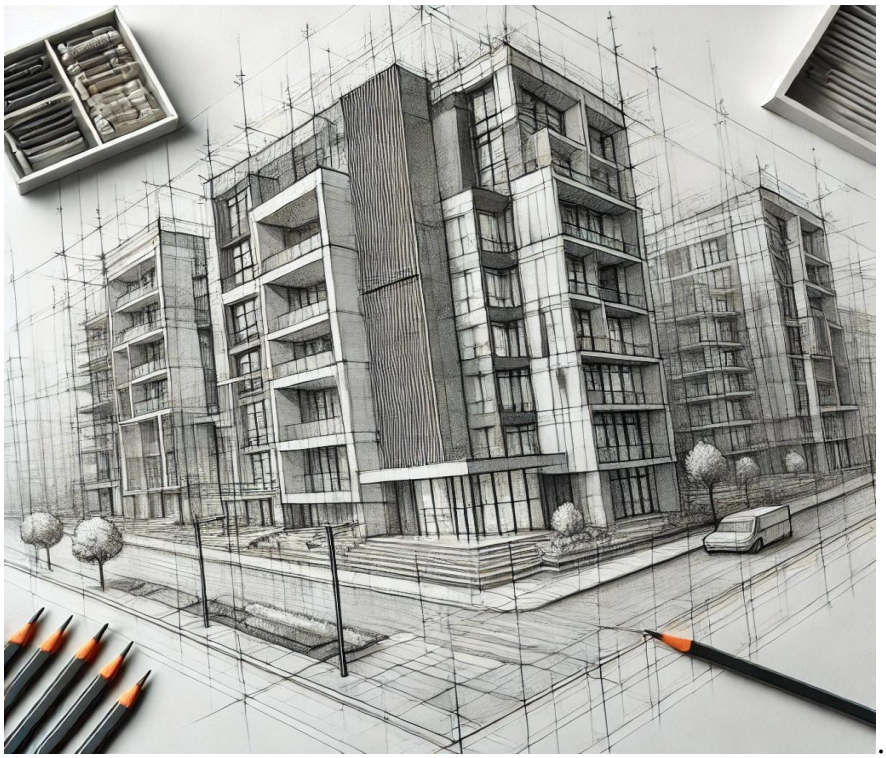
The wireframe model and the cube should be positioned at a 45-degree angle relative to the artist. This setup includes a two-dimensional sheet of paper, a pencil in hand, and a model placed on a table within the artist's line of sight. The model should be positioned at least at arm's length when the artist extends their hand forward. The first step is to carefully observe the model. One edge of the cube appears closest, while the remaining edges and faces recede into the distance. Since every drawing begins with establishing a foundational structure, the cube should also be constructed starting from its base. A horizontal guideline is drawn on the paper relative to its edges. Next, the angles at which the cube's receding edges extend inward are estimated visually and marked accordingly.

After sketching the base, a reference point is placed on the lower part of the cube's nearest face to indicate its height. A vertical line is drawn upward from this point. The remaining vertical edges are then extended upward to their appropriate heights. Finally, the top edges are connected by drawing lines between the marked points, forming a structured, wireframe-like representation of the cube. This drawing process relies on an estimation technique rather than precise measuring instruments. It allows the artist to perceive the hidden, receding parts of the object and understand the effects of perspective foreshortening. To further develop an understanding of perspective, artists should practice quick, constructive linear sketches of various objects such as glass jars, cups, chairs, tables, cabinets, and televisions. This practice will be highly beneficial when progressing to tonal and more detailed drawings.

[3] Tursunov, Sh. Sh., & Soliev, D. Z. (2023). The Unique Features and Challenges of Artistic Expression in Graphic Arts. Construction and Education, 1(3), 118-121.

Discussion:

The arrangement of geometric bodies in architectural composition follows specific principles that enhance visual hierarchy, spatial clarity, and formal articulation. One of the most fundamental techniques is the use of symmetry and asymmetry to create either a sense of order and stability or dynamism and movement. Symmetrical compositions, often found in classical and neoclassical architecture, evoke a sense of balance and authority, while asymmetrical arrangements, characteristic of modernist and deconstructivist designs, introduce visual tension and complexity. Another critical compositional strategy is contrast and hierarchy, where the juxtaposition of different geometric forms accentuates focal points and guides the observer's perception of spatial relationships. For instance, a towering cylindrical volume amidst a cluster of cubic forms draws attention and establishes a visual landmark within the composition



Conclusion:

In conclusion, repetition and rhythm further contribute to architectural coherence by reinforcing patterns and creating a sense of continuity, as seen in the colonnades of ancient temples or the modular grid systems of contemporary skyscrapers. Additionally, proportion and scale play a vital role in determining the relationship between geometric bodies and the human experience, ensuring that built forms resonate with the users' spatial and sensory perceptions. By integrating these principles, architects can craft compositions that not only fulfill functional requirements but also engage with the emotional and psychological dimensions of space.

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