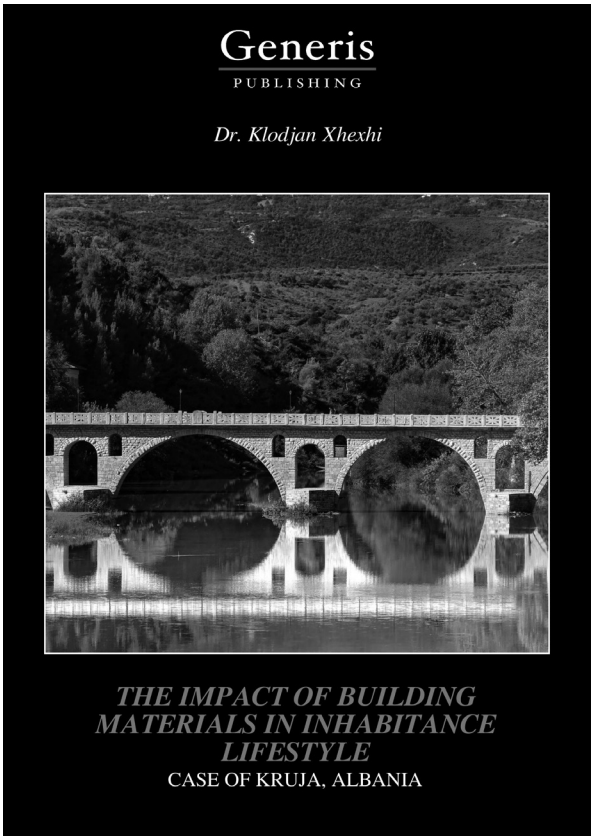
# THE IMPACT OF BUILDING MATERIALS IN INHABITANCE LIFESTYLE

**KRISTIANA MEÇO**
*POLIS University*




**AUTHOR**: Dr. Klodjan Xhexhi
**Publisher**:Generis Publishing
**Pages**: 188
**Year**: 2021
**ISBN**: 978-1-63902-862-7

**Overview and Context**

Dr. Klodjan Xhexhi's book "The Impact of Building Materials in Inhabittance Lifestyle: Case of Kruja, Albania" is an interdisciplinary study positioned at the intersection of architecture, building technology, environmental performance, heritage conservation, housing studies, and the social sciences. Published by Generis Publishing in 2021, the book develops a detailed case study of Kruja and investigates how the physical characteristics of residential buildings interact with the everyday life, perceptions, behavior, comfort, and potential residential decisions of their occupants.

The book takes as its central object the existing housing stock of Kruja and initially distinguishes three broad categories: historic dwellings, socialist-period housing, and modern buildings. The analytical focus subsequently narrows to historic dwellings, particularly those associated with the eighteenth century and the historic core, and socialist dwellings dating principally from approximately 1960 – 1985. This narrowing is important because it allows the author to compare two building stocks that embody substantially different architectural, constructive, technological, and socio-cultural conditions.

What makes the study distinctive is its attempt to avoid treating building materials as an isolated technical issue. Instead, materials are interpreted as part of a larger chain connecting construction systems, thermal and moisture behavior, energy use, environmental comfort, household economics, patterns of occupation, satisfaction, and attachment to place. The book therefore proposes a broad conception of inhabitation in which the building is not simply an object but an active component of everyday life.

The intellectual ambition of the book is particularly relevant in the context of Albanian cities, where historic structures, socialist housing estates, informal additions, and post-1990 construction coexist within the same urban territory. Kruja provides an unusually productive setting for this inquiry because its historic identity is inseparable from its built

heritage, while its twentieth-century and contemporary housing stocks reveal different stages of modernization and changing expectations of domestic life.

**The Book's Central Argument**

The principal argument can be understood as a proposition about interdependence: the physical performance of a dwelling and the lifestyle of its inhabitants cannot be adequately understood separately. Building materials, wall thicknesses, openings, roofs, floors, moisture conditions, temperature, ventilation, and thermal behavior influence how residents occupy their homes; at the same time, household practices, economic capacity, cultural habits, and perceptions influence how buildings perform in use.

This argument is developed through two parallel analytical platforms. The first is a social platform based on questionnaires. A 30-question questionnaire was applied to residents of the three building categories, with 10 respondents associated with historic dwellings, 14 with socialist housing, and 10 with post-modern buildings. The questions cover family size, duration of residence, spatial organization, temperature differences, heating and cooling, roof problems, humidity, ventilation, household expenditure, clothing behavior, restoration needs, satisfaction, social interaction, orientation, lighting, noise, awareness of insulation materials, and recycling.

The second is a technical platform based on direct observation and instrumental measurement. Three historic dwellings, and three apartments build during socialist period were selected for detailed measurement. The author records illuminance level, electric and magnetic fields, moisture, noise, façade temperature, indoor wall and floor temperature, indoor air temperature, and window-to-wall and window-to-floor ratios. The study therefore attempts to establish a bridge between what residents say about their homes and what can be measured in the buildings themselves.

The conceptual strength of this structure lies in its refusal to reduce quality of life to either subjective perception or physical measurement alone. The book instead suggests that a meaningful understanding of residential performance emerges when the two are interpreted together. This is arguably its most important contribution.

**Architectural and Historical Reading of Kruja**

The opening part of the book is more than a conventional contextual chapter. It establishes the historical and architectural foundations necessary for understanding why materials and construction techniques matter in Kruja. The discussion moves from the geographical position and historical development of the city to the medieval castle, the National Museum "Gjergj Kastriot Skënderbeu," traditional dwellings, socialist housing, climate, accessibility, urban problems, archaeological resources, and the motivation for the research.

The treatment of the historic dwelling is one of the book's strongest architectural components. Traditional houses are presented not merely as stylistic objects but as systems adapted to terrain, climate, social structure, available materials, and local craftsmanship. The discussion of stone masonry, timber elements, lime and clay mortars, wooden belts, roofs, loggias, fire rooms, courtyards, openings, and the relationship between building and sloping terrain demonstrates how construction technique and lifestyle are historically intertwined.

The analysis of the "dwelling with corner" and the "dwelling with loggia" is especially useful because these typologies demonstrate that domestic space is simultaneously environmental and social. The loggia, for example, is not simply an architectural ornament. Its location, enclosure, openings, shading, and seasonal use are connected to patterns of occupation and to the climatic conditions of the dwelling. Similarly, the fire room historically operated as a functional and social core, while the arrangement of rooms reflected family structure, privacy, hospitality, and economic organization.

The book also gives significant attention to the National Museum of "Gjergj Kastriot Skënderbeu" and the architectural debates surrounding its design. By discussing references to Albanian tower architecture and to international architectural publications and museum precedents, the author places the museum within a broader architectural discourse rather than treating it simply as a monument. This reinforces one of the book's recurring themes: architecture is produced through an interaction between local tradition, technology, cultural meaning, and external models.

A further strength is the recognition that the post-1990 period introduced a new layer of transformation. The book observes that the liberalization of the construction sector, demographic movement, changing economic conditions, and new forms of residential construction altered the morphology of Kruja. This historical layering is important because it shows that contemporary building problems cannot be separated from the political, economic, and technological transitions through which the city has passed.

**Methodological Structure and Empirical Strategy**

From a methodological perspective, the book is ambitious. It combines qualitative architectural observation, questionnaire-based social research, environmental measurement, descriptive comparison, binary and Tobit regression models, and linear regression analysis. The author uses the social platform to identify relationships among quality-of-life indicators and then uses the technical platform to investigate the physical parameters most directly connected to the statistically stable social findings.

The use of binary and Tobit models is particularly notable because the questionnaire contains categorical and scaled responses. The book does not simply present percentages; it attempts to model relationships among variables and to identify statistically significant associations. For historic dwellings, for example, the models examine relationships involving apartment area, family size, satisfaction, restoration needs, time spent in the dwelling, heating, and other variables. For socialist housing, comparable models examine spatial conditions, heating, moisture-related indicators, orientation, and residential change.

The technical analysis then concentrates more specifically on temperature and moisture. The book establishes linear regression models in which moisture is treated as the dependent variable and the temperature of interior walls and floors as the independent variable. The rationale is consistent with building-physics principles: moisture and temperature are physically interconnected, and the condition of masonry affects thermal resistance and the durability of building components.

One of the book's methodological virtues is transparency about the measurement process. The author identifies the instruments used, their stated measurement ranges and error margins, the measurement locations, and the time period. The measurements were carried out on 26 January 2020, approximately between 11:00 and 13:00, in three historic dwellings and three socialist apartments. This level of procedural description makes the empirical work more reproducible than a purely descriptive architectural case study.

The methodological approach is appropriate to the exploratory case-study nature of the research. By combining social questionnaires with instrumental measurements, the book provides a valuable multidimensional understanding of the relationship between building materials, environmental conditions, and inhabitation. The focused sample allows for detailed examination of representative dwellings and meaningful comparison between different housing periods and construction systems. The book also transparently identifies opportunities for future research through longer-term and seasonal monitoring.

The statistical analysis further strengthens the study by exploring relationships between physical building characteristics, environmental conditions, and residents' perceptions. Rather than aiming for broad generalization, the research provides a focused empirical framework for Kruja while generating valuable evidence and directions for further studies on housing quality, building materials, and inhabitation.

**Building Materials, Moisture, Thermal Performance and Comfort**

The technical heart of the book is its analysis of materials and environmental performance. The comparison between historic and socialist buildings demonstrates how apparently different construction systems generate different patterns of moisture, temperature, lighting, and thermal behavior.

The measured moisture levels are particularly significant. The book reports an average of approximately 21.21% for the historic dwellings and 15.5% for the socialist apartments. The higher moisture level in historic dwellings is interpreted in relation to their direct or indirect contact with the terrain, thick natural-stone masonry, lack of adequate contemporary insulation, and the characteristics of their construction systems. This is a valuable finding because moisture is treated not merely as a maintenance problem but as a factor affecting durability, thermal resistance, comfort, and decisions about rehabilitation.

The material analysis is one of the most practically relevant parts of the study. Historic walls are described in terms of natural stone, mortar, wooden structural or connecting belts, timber floors, reed-based ceilings, plaster, and traditional roof structures. Socialist buildings, by contrast, are characterized by reinforced-concrete structural systems, silicate-brick infill, cement mortar, plaster, and other industrialized materials. The comparison demonstrates that the material system is inseparable from the building's relationship with terrain, climate, maintenance, and subsequent interventions.

The book also identifies the consequences of inappropriate later interventions. Historic buildings have, in some cases, been repaired with materials belonging to later technological periods, including red brick and cold aluminum frames. These interventions may solve immediate practical problems while simultaneously weakening the architectural coherence of the historic building. This observation is particularly important for contemporary conservation practice, where the question is not simply whether a material is technically functional, but whether it is compatible with the existing building fabric.

The illuminance results provide another useful example of the book's comparative logic. Although the socialist buildings have a higher window-to-wall ratio, approximately 19% compared with 10% for the historic dwellings, the measured average illuminance is reported as higher in the historic dwellings, approximately 29.98 lux compared with 16.59 lux. The author attributes this apparent contradiction to orientation, room depth, opening position, and the number of façades receiving natural light. This is a useful architectural lesson: a larger opening does not automatically guarantee better daylight performance; geometry, orientation, section, and spatial configuration remain decisive.

The thermal results similarly distinguish the two building categories. Historic dwellings recorded lower average façade, wall/floor, and indoor air temperatures than the socialist apartments. The book connects this difference to thermal bridges, roof and opening performance, economic limitations on renovation, and the tendency of residents to concentrate their activities in particular rooms. Here the study successfully illustrates its central thesis: physical building performance and human behavior are mutually reinforcing.

The discussion of moisture is particularly relevant to sustainable rehabilitation. The book emphasizes non-destructive measurement in historic structures, where destructive investigation is incompatible with conservation requirements. This is a practical methodological contribution for architects and engineers working in protected areas, where intervention must balance diagnostic precision with minimum physical disturbance.

**Quality of Life, Place Attachment and Residential Behavior**

Perhaps the most original dimension of the book is its treatment of quality of life as an architectural and material phenomenon. Residents of historic dwellings demonstrate strong attachment to their homes despite poor physical conditions. The book associates this attachment with the historical setting, tranquility,

economic opportunities generated by tourism, family continuity, and the symbolic value of the castle. This complicates a purely technical interpretation of rehabilitation: improving a building is not simply a matter of increasing thermal performance, because residents may value aspects of place that cannot be captured by physical measurements.

The socialist housing stock produces a different picture. Residents report dissatisfaction, a need for more space, a desire for improvement, and in the book's questionnaire approximately 79% express a preference for changing residence. The study associates this with limited living areas, weak insulation, poor physical conditions, and the legacy of standardized housing production. The contrast between strong attachment in the historic stock and greater residential mobility in the socialist stock is one of the book's most interesting socio-architectural observations.

The book also demonstrates that domestic behavior is shaped by environmental and economic conditions. Residents of historic dwellings may rely on wood or gas heating and concentrate activities in warmer spaces, while residents of socialist buildings use electricity more extensively. Ventilation practices vary by season, and economic capacity affects the ability to use air-conditioning or undertake building improvements. Such observations reinforce contemporary approaches to building performance that recognize the occupant as an active participant in energy consumption and comfort.

The concept of place attachment is especially important because it shifts the rehabilitation question from "How should this building be upgraded?" to "How can this building be improved without destroying the reasons people value living here?" This is a valuable contribution to heritage-led regeneration. A technically efficient intervention that causes displacement, loss of identity, or destruction of traditional spatial qualities may be less successful socially than a carefully calibrated intervention that improves moisture, temperature, ventilation, and durability while retaining cultural continuity.

**The Indexed Model and Scenario-Based Reasoning**

The later chapters represent the book's attempt to synthesize social and technical evidence into a more operational framework. The indexed model is constructed from statistically stable relationships between historic and socialist housing, with moisture and noise emerging as particularly important quality-of-life indicators. The technical platform then provides a physical interpretation of the moisture-temperature relationship.

The scenario analysis is an interesting step toward decision support. The book considers how changes in temperature could shift moisture conditions and, consequently, influence the probability associated with residential change. In the historic dwellings, the analysis indicates that an increase in wall and floor temperature of approximately 4°C would move the buildings toward a more favorable moisture range and reduce the modeled probability of residents changing residence. For socialist housing, a smaller temperature increase is described as sufficient to reach a more favorable range.

The value of these scenarios lies less in their numerical universality than in the principle they demonstrate: targeted physical improvement can potentially have social consequences. Rehabilitation can influence not only energy performance and material durability but also satisfaction and residential stability. This is a particularly productive line of inquiry for future research, because it opens the possibility of connecting building-physics models with social and demographic models.

Nevertheless, these scenarios should be interpreted cautiously. A modeled relationship between temperature, moisture, and residential intention does not establish a direct causal chain in real life. Decisions to remain in or leave a dwelling are influenced by employment, income, family structure, ownership, neighborhood conditions, access to services, and many other variables. The book is strongest when it presents the scenario as an analytical aid rather than as a deterministic prediction.

**Strengths, Limitations, and Areas for Further Development**

The principal strength of "The Impact of Building Materials in Inhabittance Lifestyle: Case of Kruja, Albania", is its interdisciplinary character. The book connects architectural history with building technology, environmental measurement with social research, and material performance with quality of life. Such integration is relatively uncommon in architectural case studies, where technical and social dimensions are often investigated separately.

A second major strength is the specificity of the fieldwork. Rather than discussing "historic buildings" and "socialist buildings" abstractly, the study identifies representative dwellings, documents their construction systems, maps their location, surveys residents, and records physical parameters. The extensive photographic, diagrammatic, and tabular documentation strengthens the empirical character of the research.

A third strength is the attention given to materials as active components of architectural performance. Stone, wood, mortar, brick, concrete, plaster, roofing systems, openings, and insulation are treated in relation to moisture, temperature, durability, and comfort. This makes the book relevant not only to architectural historians but also to building technologists, conservation specialists, engineers, and professionals involved in rehabilitation.

The book nevertheless contains areas that would benefit from refinement in a future edition or an expanded research publication. Methodologically, future research could extend the measurement campaign across seasons and over longer periods, particularly for temperature, humidity, daylight, acoustic exposure, and energy consumption. A larger respondent sample would also permit more robust statistical modeling. Where health-related interpretations are discussed, future editions could distinguish more explicitly between measured environmental exposure and established health outcomes, especially when the empirical study itself does not directly assess health.

These limitations should be understood as opportunities rather than weaknesses. They point directly toward a second generation of research capable of transforming the Kruja case study into a broader comparative framework for Albanian and Balkan housing.

**Relevance to Contemporary Sustainable Rehabilitation**

The book remains highly relevant to contemporary architectural practice because its central questions have become increasingly important: how can existing buildings be rehabilitated, how can embodied cultural value be retained, how can energy and environmental performance be improved, and how can residents remain part of the process?

Its conclusions propose a multidimensional rehabilitation strategy. Architecturally, historic structures should be conserved in accordance with heritage regulations. Socially, interventions should reduce the pressure for residents to abandon their homes. Economically, rehabilitation requires realistic financing mechanisms. Technically, insulation, waterproofing, moisture reduction, and structural consolidation should be considered. From an environmental perspective, appropriate and recyclable materials are encouraged. The book also recognizes the potential role of advanced materials, including phase-change materials, within a broader energy-efficiency strategy.

This framework aligns closely with contemporary principles of adaptive reuse, deep renovation, heritage-sensitive retrofitting, and sustainable urban regeneration. Importantly, the book does not argue for modernization at any cost. Its underlying message is that improvement must be compatible with the existing physical and cultural structure of the dwelling.

For architecture and engineering education, the book is also useful as a teaching case. It demonstrates how a research question can be translated into field observation, survey design, measurement, statistical analysis, and architectural recommendations. Students can use the Kruja case to understand the relationship between building technology and human behavior, while also learning how heritage constraints affect diagnostic and intervention methods.

**Overall Scholarly Contribution**

Taken as a whole, the book can be read as an early and important contribution to a research agenda that places inhabitation at the center of building performance. Its key conceptual move is to regard the building as a socio-technical system. Materials influence environmental conditions; environmental conditions influence behavior; behavior influences energy use and satisfaction; and satisfaction influences the way residents value, maintain, improve, or abandon their homes.

The Kruja case is especially appropriate for such an approach because the city contains multiple historical layers within a compact territory. Historic dwellings embody vernacular knowledge and long-term adaptation. Socialist housing represents standardization and a different economic and technological logic. Modern construction introduces another set of expectations, materials, and environmental conditions. Comparing these layers makes it possible to observe not only how buildings change, but how lifestyles change with them.

The book's strongest achievement is therefore not any single measurement or regression coefficient. It is the construction of a bridge between architectural culture and building science. In this sense, the work contributes to an understanding of sustainable architecture that is broader than energy efficiency alone. Sustainability is presented implicitly as the capacity to preserve buildings, support residents, reduce environmental burdens, improve comfort, and make informed material decisions at the same time.

**Conclusion**

"The Impact of Building Materials in Inhabittance Lifestyle: Case of Kruja, Albania" is a substantial interdisciplinary study that combines architectural investigation, heritage analysis, questionnaire research, instrumental measurement, statistical modeling, and rehabilitation-oriented recommendations. Its principal contribution is the recognition that building materials and construction systems participate directly in the lived experience of architecture.

The book provides a valuable documentation of Kruja's residential architecture and offers a structured comparison between historic and socialist housing. Its empirical results highlight moisture, temperature, daylight, noise, material composition, thermal bridges, spatial limitations, and resident behavior as interconnected dimensions of residential quality. Equally important, it demonstrates that technical rehabilitation cannot be separated from place attachment, household economics, cultural continuity, and residents' expectations.

For architects, engineers, conservation specialists, researchers, planners, and students, the book offers a useful example of how the physical building and the social life of its occupants can be studied as a connected system. Its broader lesson is particularly pertinent to the contemporary challenge of rehabilitating existing building stock: successful intervention requires more than replacing materials or improving technical parameters. It requires understanding why buildings perform as they do, how people live in them, what they value, and which interventions can improve performance without erasing architectural and cultural identity.

In that respect, Xhexhi's study occupies a meaningful position between architectural heritage research and building-performance research. Its focus on Kruja gives the work a precise geographical identity, while its interdisciplinary methodology gives the findings relevance beyond the immediate case. The book ultimately invites architects and engineers to reconsider the dwelling not simply as a constructed object, but as a living environment in which materials, climate, technology, economics, culture, and human behavior continuously interact.