
A Review-Based Comparative Study of Laminates and PVC as Kitchen Cabinet Finishing Materials in Residential Architecture in Bahria Town Lahore.

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Abstract

Interior finishing materials have a major influence on the environmental performance within a residential building because of their durability and end-of-life disposal. The kitchen is the most heavily utilized space in residential buildings, and is constantly subjected to heat, moisture, grease and mechanical stress, which can cause materials to degrade and consume resources throughout a building's life. The global socio-economic changes have completely changed the domestic kitchen from a gendered and utilitarian space to the multi-functional social centre of the modern home, and the modern lifestyle changes have further increased the use of the kitchen, making it a space of shared activity, rather than a feminine domain, as cooking is no longer a feminine identity. This increased demand puts a critical need on the choice of long-lasting and sustainable kitchen cabinet finishing materials. This study compares the use of laminates and PVC foam board as kitchen cabinet finishes in the context of the fast growing residential community of Bahria Town, Lahore, where moisture infiltration and termite infestation are constant problems to the longevity of materials. The study is conducted using a mixed-methods design, which involves semi-structured interviews with two focus groups of retailers and suppliers along Multan Road and architects who are actively involved in the construction of buildings in Bahria Town, in addition to the review of academic literature and Life Cycle Assessment documentation. The results show that although laminates are the most popular choice because they are inexpensive and familiar to clients, they have significant moisture and termite resistance issues. However, PVC foam board has a better life cycle durability and sustainability story, but is not widely used because of lack of awareness and cost sensitivity among clients. The study

findings indicate that professional guidance and client education can be a valuable tool to help promote the use of PVC as a more durable and sustainable finishing material for residential kitchen cabinetry.

Keywords: Kitchen cabinetry, sustainable finishing material, durable materiality, PVC finishing material, laminates, Life Cycle Assessment, residential architecture, Bahria Town Lahore.

Background of the Study

In the modern world, the kitchen is a key area in the house, as gendered role play has undergone a dramatic transformation in the last few years, and it is no longer a feminine-dominated space but a space of shared activities for family interaction. The domestic kitchen is the most intensively used area of the house, and is also a social area where family members interact and build relationships. The kitchen is no longer a women dominated space or gender oriented area, as contemporary lifestyle changes have turned it into a multi-functional and shared space. Whatever the size and kitchen layout, it has become a multi-functional space, a social space for eating, working, meeting and living, particularly in the recent global changes in lifestyle. It is much more than a cooking area but “the heart of the home” now. As Moreira and Farias (2022) show, gendered spaces in the home were created and maintained in line with the social norms of the time, with the kitchen being one of the most restricted spaces in this hierarchy (Moreira & Farias, 2022). But the modern changes in the roles of the sexes, family structures and domestic life have completely broken this cycle. The kitchen is no longer a gendered space but has become a space of shared activity, a place where all family members cook, socialise, work and perform daily rituals (Silestone Institute, 2019).

The domestic kitchen is now considered to be the most heavily used room in the house. It is not just a place for cooking, but also a place for socializing and strengthening family bonds and nurturing relationships (Silestone Institute, 2020). This is supported by the research conducted by Flores et al. (2024) which states that the kitchen is the center of the future home, metaphorically and practically, it is important to improve the quality of life and social participation of the members of the household. The kitchen, which was once a domain of women and servants, has become, in the modern world, a common space, lived by all and at the centre of the house, where cooking is perceived as a relational activity, is accelerated by the COVID-19 pandemic and the changes in lifestyle that followed.¹⁹ In the modern kitchen, a wide variety of activities can be carried out at the same time: a professional working at a kitchen island, a child doing homework, a family member preparing a meal, etc. — all in the same spatial zone (Teckfine, 2026).

Whether it's a small or large kitchen, or a kitchen with a different layout, the modern kitchen has become a multipurpose space. Open plan layouts have broken down the boundaries between the kitchen and adjoining living areas, allowing for a more fluid flow and promoting social interaction (SunnyfieldsCabinetry, 2024). The multifunctionality of this space imposes greater demands on the finishing materials used in this space, which must be able to withstand repeated and diverse use, while retaining their aesthetic appearance over time. The kitchen's new prominence brings with it a new set of material choices. The materials used for finishing the materials, especially for kitchen cabinetry, should be selected with great consideration for durability and sustainability. Sustainable materials are becoming a key solution to the environmental issues of the built environment, especially in the field of residential architecture (Cabinteq, 2025). Specifically, in the context of residential architecture, finishing materials, such as kitchen cabinetry, should be selected with a particular focus on sustainability, which helps to minimise the carbon footprint of the building, and also provides increased durability, thereby decreasing the need for replacement and renovation. The use of durable and long-lasting finishing materiality allows architects to make a meaningful contribution to climate

change mitigation efforts. Therefore, the residential kitchen was chosen as the main focus of this research based on this rationale. The use of durable materials can help to minimize the frequency of repairs and replacements, which in turn can help to reduce the amount of resources used and the environmental impact over time (ProCraft Cabinetry,2025).

Real sustainability, as Ronbow (2024) puts it, is to make cabinets that last. When cabinets last, they don't need to be replaced, which saves resources and energy. The use of durable and long-lasting finishing materials is a way for architects to make a positive impact on climate change mitigation and lower the carbon footprint of residential buildings. As a planned and fast-growing residential community, Bahria Town Lahore embodies the preferences of the modern lifestyle and the modern architectural trends. In this context, materials used in kitchen cabinets should be readily available, affordable, easy to maintain and have a low replacement rate. In this context, laminates have traditionally been the most popular choice for kitchen cabinets, as they are easy to find in local stores, have a high gloss and are modern looking.

But a material with similar — and in some ways better — qualities is also easily available in the Pakistani market: PVC (Polyvinyl Chloride), a synthetic polymer of plastic. PVC foam board is a versatile and lightweight material produced by the process of controlled temperature and pressure of polyvinyl chloride resin, stabilisers and processing aids. It is highly appreciated for its cost effectiveness, flexibility and ease of installation, worldwide. PVC boards are not water absorbent, unlike engineered wood boards that use water-resistant adhesives. (PVC, unlike conventional laminates, plywood or MDF(ApplePly,2026), cannot absorb water, no matter how long it is exposed to water. PVC foam board is more resistant to fire, moisture, humidity, scratches and termite infestation than traditional laminates, which are especially important in a kitchen setting where there is constant exposure to heat, steam and cleaning products. In addition to its performance attributes, PVC's low maintenance and low replacement needs make it a potentially more sustainable option than traditional laminate finishes. It is durable, which helps to reduce the lifecycle environmental impact of kitchen cabinetry, both in terms of resource conservation and waste reduction (Edo et al., 2026). Despite all these benefits, PVC foam board is a material that is hardly discussed in the context of designing a kitchen at home in Pakistan. The aim of this research is thus to systematically review the properties, performance and sustainability of PVC as a kitchen cabinet finishing. Material, which places its possibilities in the particular context of residential architecture in Bahria Town Lahore.

Due to the change in the social dynamics, the kitchen has become a multifunctional space in the modern lifestyle and architecture, from a fully functional space to a central one. In recent studies, the modern kitchen is not only a space for preparing meals, but also a space for social interaction in residential spaces, which leads to the need for durable and long-lasting cabinetry materials in the kitchen (Evolution of Domestic Kitchen,2011). They are also used more in the kitchen, and are exposed to more heat, moisture and grease, so durability is an important consideration; durable materials help to conserve resources and reduce waste, which is important for sustainability. International Conference on Sustainability Energy and Construction Management [ICSECM] (n.d.). Life Cycle Assessment (LCA) is often employed to gain insight into the impacts of building materials on the internal and external environment in sustainable residential research. This theory helps architects to approach more refined choices regarding materiality and sustainability (Goankar et al., 2022).

The kitchen is no longer a place for cooking, but a socially connected place, as mentioned by the digital platform who do researches on home space worldwide, the Silestone Institute in Barcelona, in its “The Kitchen in the 21st century; multifunctional, eco-friendly, unisex and connected to social media” (Silestone). Again, in one of the other articles, Silestone Institute mentioned: " that the kitchen is the heart of the home, and these changing lifestyle patterns underpin the need for durable

materiality for the kitchen" (Silestone, 2019). Now, narrowing down to the context of Pakistan, industry-based studies showed that laminate and acrylic finishes are widely used due to their visual aesthetic, cost-effectiveness, and because of their alignment with modernity (Zameen.com,2020; SyedBrothers,2025). PVC is undoubtedly a bit more expensive, but offers more protection against moisture, heat, wear and tear and termites. (BeautifulHomes,2021; Kitchen Solvers,2024). The other industrial research study shows that Laminate and Acrylics are most popular in the world due to their compatibility with modern interior (Livspace,2022).

This research is based on two theories, namely the theoretical framework of this research is mostly informed by two theories, namely: Life and Social. The theory of Cycle Assessment (LCA) and Substitution Principle Theory. The LCA is all about assessing a material's long-term environmental performance implications to evaluate its use, maintenance and end-of-life stages; hence, this theory can be easily applied to kitchen cabinetry finishing materials, and many researches already supported their research through this theory. Next is the Substitution Principle Theory, which is the theory that the replacement of conventional materiality with the alternative materiality that meets the required performance while reducing environmental and functional impacts without sacrificing aesthetic and cost efficiency. This theory can also be applied to the evaluation of materials such as PVC foam board as more sustainable, because they can provide a longer lifespan and less replacement frequency than commonly used materials such as laminates, when used in kitchen cabinetry.

Research Methodology

Research Design and Methodological Framework

The research is a mixed methods design, combining a qualitative approach and a review-based approach to fully explore the durability, performance and relative sustainability of laminates and PVC foam board as kitchen cabinet finishing materials in residential architecture. This integrated method will be used in conjunction with primary empirical data collected directly from field experts and secondary data from academic literature and industry published research, which will ensure that the findings from the research are contextually reliable and analytically sound, both from lived professional experience and established scholarly knowledge. The qualitative aspect of this research was intentionally given more importance than a wide-ranging quantitative survey approach, because the method of the research was guided by the nature of the research objectives: the study is not only to identify the materials used in Bahria Town, Lahore, but also to find out why these materials are selected, how they perform over time in this particular environmental context and what factors — technical, economic and perceptual — are limiting or encouraging the use of more durable and sustainable alternatives. These are questions of depth, meaning and professional judgment, which closed-ended surveys are not suited to answer. The qualitative approach, on the other hand, enables the research to gain access to the tacit knowledge and experience-based insights of practitioners who are working on a daily basis in the material supply and design system of Bahria Town.

Data Collection Strategy

Two data collection strategies are used: primary data collection is done through semi-structured interviews with two purposively selected focus groups, and secondary data collection is conducted by a structured review of existing academic literature, sustainability research and industry-published studies. These two are intended to be used in an active dialogue with each other. The secondary literature review serves as the theoretical and technical basis, the kitchen's social role has developed, the properties of materials in use, and the sustainability of materials used in residential finishes, against which the results of the primary literature (interviews) are interpreted, compared and evaluated.

Primary Data Collection

The primary data for this research was collected from two purposively selected focus groups of professionals who are directly involved in kitchen cabinet materials in the residential built environment of Bahria Town, Lahore through semi-structured interviews. The semi-structured interview format was deliberately selected as it provides a balance between thematic consistency and conversational flexibility. The semi-structured interview is not as structured as a fully structured interview, in which the interviewer asks participants to respond in a specific format, but it does include a set of prepared questions that will cover the same thematic areas, while giving the interviewer the flexibility to delve deeper and to tailor the interview to the participant's experience and knowledge. This is a format that is well suited when the research is designed to capture experience-based professional judgment and comparative material — exactly what this study is looking for. Participants were selected using purposive sampling technique, which involves deliberate selection of participants based on their knowledge and experience of kitchen cabinet material selection, supply and performance in the context of the residential environment of Bahria Town, Lahore. The two focus groups were thus made up of people with professional design experience or first-hand experience in the supply chain of the materials being studied.

Retailers and Suppliers of Kitchen Cabinet Materials Focus Group A

The first focus group consisted of retailers and suppliers of kitchen cabinet finishing materials in Bahria Town, Lahore and Multan Road, Lahore, the main arterial road that connects to Bahria Town and is the main commercial road through which building and finishing materials are purchased for the residential community. These participants were chosen because they are directly involved in the frontline of the local material supply chain and have regular, daily interaction with homeowners, contractors and developers who are involved in making material procurement decisions.

The interview questions asked to this group were organised around four main themes: firstly, material availability and stock patterns, that is, the relative availability of laminates and PVC foam board in the local retail market and any changes in the supply or demand of materials over time; secondly, cost variations between materials and how this affects procurement behaviour and client decision making; thirdly, material maintenance requirements and observed patterns of return, repair or premature replacement of materials sold, a dimension of material performance that is not often documented in manufacturer literature but is often observed in practice; and fourthly, prevailing customer preferences and the factors most commonly cited by clients when choosing kitchen cabinet finishing materials. These themes were conceived to gain supply-side knowledge which is essential to understanding the real-world dynamics of material adoption in Bahria Town, but which is largely lacking from the existing academic literature on this topic.

The focus group B was about architects working on residential projects in Bahria Town.

The second focus group consisted of architects who are involved in residential design and construction projects in Bahria Town, Lahore. This group was chosen because, unlike retailers, who are mainly involved in materials in a commercial context, architects are involved in materials through two aspects: technical specification and client consultation, and they have to consider the performance, aesthetic, budgetary and sustainability aspects of the materials they recommend and specify for kitchen cabinets. Their professional experience thus gives them a technically informed and contextually embedded perspective, which is very valuable to this research.

The interviews with this group were focused on three main themes: first, the criteria used by architects

for material selection, such as durability, moisture resistance, termite resistance, cost, aesthetics, client preferences, and the influence of sustainability on material selection in the current residential design practice in Bahria Town; second, the comparative durability performance of the two materials, laminates and PVC foam board, as observed and evaluated over time in built residential projects; and third, the changing trends in kitchen cabinetry finishes and client expectations in Bahria Town. The interviews were also structured to solicit comparative opinions based on experience, not theory, with laminates versus PVC foam board, so that the results of this research would be based on real-world professional practice.

Secondary Data Collection

The secondary data also includes the extensive and comprehensive study of academic journals, industry based publications and credible online literature including conference papers, architectural practice reports, prevailing material trends related to sustainability materialism in the construction industry and kitchen design evolution assessments. This resulted in the creation of all the background literature review of this research and provided a theoretical basis for the questions for the interview. The four main subject areas that were selected for secondary sources were: the transformation of the domestic kitchen as a social and functional space in contemporary residential architecture; the comparative material properties of laminates and PVC foam board, with a particular focus on moisture resistance, durability, termite resistance and maintenance; life cycle assessment considerations as they apply to residential finishing materials; and the increasing focus on sustainable material selection in residential building design. This review-based approach allows the main empirical data collected in the interviews to be interpreted in a rigorous and well-evidence-based theoretical framework. The price, client preference, architect preference and retailer preference and availability. The qualitative data from the semi-structured interviews in the focus groups was transcribed and analysed to identify these Key themes.

Results and Discussion

This research has been conducted with the help of qualitative data which was collected through semi-structured interviews with retailers in the vicinity of Bahria Town Lahore and architects engaged in residential projects in Bahria Town. The findings from the interviews were thematically categorized based on the key dependent variables: availability from local retail stores in Bahria, retailer preference, architectural consultancy preference, choice of client and cost and the responses were coded to gain insight into the recurring themes. Fifteen stakeholders/retailers were identified based on the following criteria: They should be located in or near Bahria Town and their voting was recorded in the Excel sheets through informal interviews. A similar step was taken with the working architects in Bahria Town. Hence, all the results were recorded in bar chart for easy understanding. The results were then triangulated with the results of the literature available to ensure that the data obtained were reliable and to improve the reliability of the research results.

Below is the graph which represents why PVC is not preferred much according to the retailers:

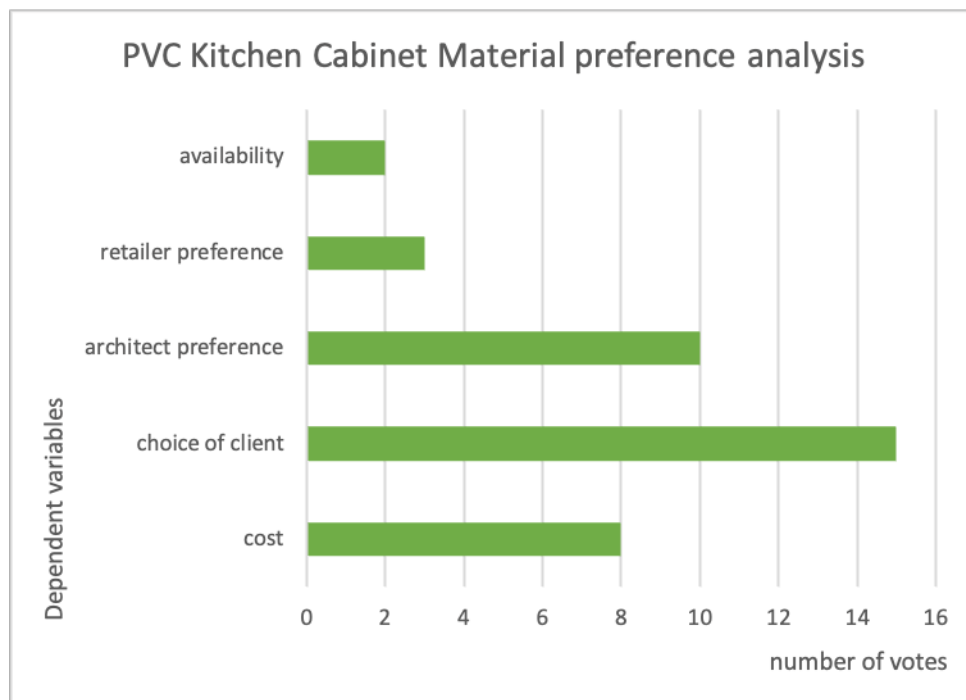


Figure 1: PVC Kitchen Cabinet Material

Figure 1 represents the reasons why PVC is not as popular in Bahria Town as laminates; mainly, it is telling that PVC is not preferred much because of the “client choice”. Clients do not choose PVC over laminates. Secondly, according to retailers, architectural consultancies are not promoting PVC in a way that client is left with no other choice but to choose PVC. Again, according to stakeholders, their choice is the least. mattered plus PVC is available in all retailers, that availability is never an issue, but cost is, as PVC is slightly more expensive than laminates.

Therefore, the findings of this represents that the most prominent reason why PVC has fewer sales than laminates is that it is not famous among clients and architects; according to the retailers, availability and cost are later issues.

Below is the graph representing why PVC is less preferable than laminates according to the actively working architects on residential projects in Bahria Town:

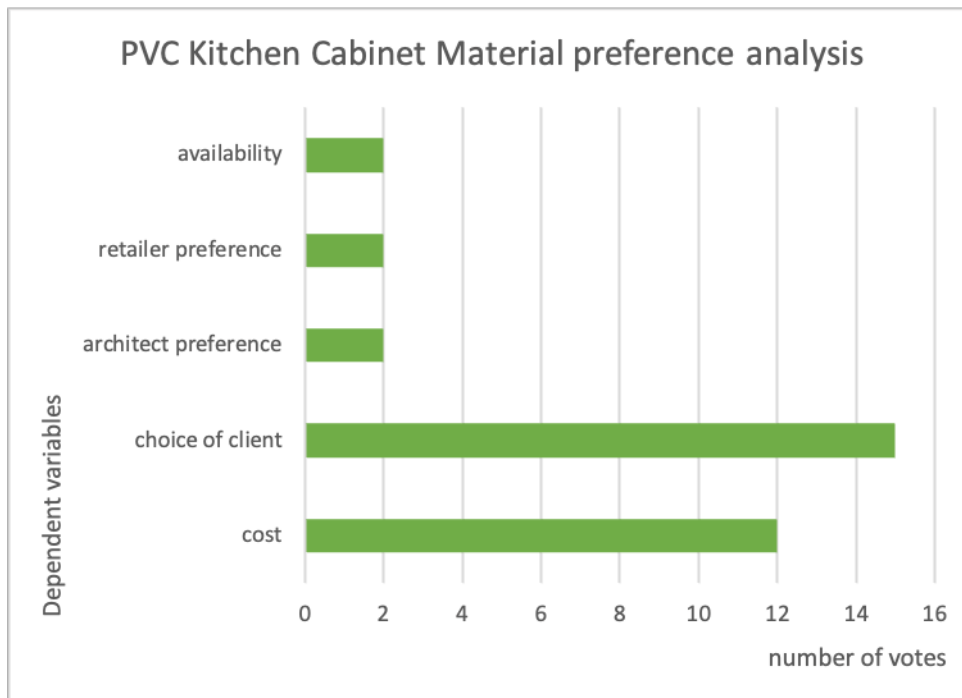


Figure 2: PVC Kitchen Cabinet Material

So, Figure 2 is a bar chart of the responses and insights of the architects working in Bahria Town regarding the fact that why PVC is less preferable among clients. So, nearly all answers are directed towards the most obvious, “choice of client”, and that is the most important factor according to the architects. The other most apparent factor as per the chart is the “cost” and hence most of the architects believe that the cost of the material is also one of the major obstacles to purchasing that material. Architect and retailer preferences are inconsiderate of the client in order to prefer PVC over laminates; that’s the perspective of the architects I interviewed.

Conclusion

The results of this research suggest that both laminates and PVC foam board have excellent properties as finishing materials for kitchen cabinetry in residential architecture and that Each has unique properties that need to be considered in the context of the kitchen's new social and functional role. As demonstrated in this study, the domestic kitchen has evolved from a traditionally gendered and segregated area to the poly-functional center of the modern home, where shared activities, social interaction and everyday family life converge (ArchDaily, 2026, February 14). This change also brings with it a newfound sense of responsibility when it comes to choosing finishing materials, with durability, longevity and sustainability now playing a key role in the long-term performance of a kitchen and its role in the reduction of the environmental footprint of residential buildings. In the fast-growing residential areas like Bahria Town Lahore, laminates are still the most popular and widely used kitchen cabinetry finishings. They have been popular for many years for a number of well-known benefits: they are affordable, come in a wide variety of designs, are very shiny and look great with modern architecture and are readily available from local stores. The use of laminates in modern residential design is not random, but rather well-founded, as they are undoubtedly a durable

and aesthetically pleasing material (Livspace Editorial Team,2025). Yet, these are significant advantages, laminates have significant weaknesses in environments where moisture is present for extended periods, humidity and termites are present, especially in soil and climate conditions in Bahria Town, Lahore. In these circumstances, laminate surfaces can swell, warp and delaminate over time, leading to more repairs and replacements, and higher resource use and environmental impact over time.

When compared directly, PVC foam board is measurably superior in just those areas where laminates are lacking. PVC is a synthetic polymer, which is inherently non-absorbent, meaning it will not absorb water, even after prolonged exposure, and is therefore more resistant to moisture and humidity (Edo et al., 2026). It also provides greater resistance to termite damage, scratches and normal wear and tear and a lower maintenance cost because it requires less replacement. From a Life Cycle Assessment (LCA) standpoint, PVC foam board has a more convincing argument as a sustainable finishing material because sustainability is not just about what a material is made of at the time of manufacture, but about its durability and how much it can save in terms of resource usage and waste production over its entire life cycle. The inherent characteristics of a material that lasts longer, needs less maintenance and doesn't need to be replaced prematurely, mean that PVC foam board has a lower life cycle environmental impact, and by this criterion, PVC foam board is superior to conventional laminates in the specific environmental conditions of Bahria Town.

However, PVC foam board has not yet gained the same market share as laminates in the local residential market and this research has found that client choice is a key constraint to the use of PVC foam board. The barriers are based on lack of awareness, cost sensitivity in the context of a higher upfront price point and lack of understanding of long-term performance characteristics and lifecycle value. There is a known disconnect between the awareness and adoption of sustainable practices in the material selection process, and this disconnect needs to be addressed through active professional involvement, as stated by Architect Magazine. Thus, the need for more knowledge of the client is crucial for more informed and sustainable decisions in material selection, and architects, interior designers and construction professionals are in a key position to do this.

To sum up, both laminates and PVC foam board play a role in the durability and longevity of the residential kitchen and should not be overlooked. Laminates are still a good and practically available option that has proven to be aesthetically and practically appealing. PVC foam board's unique properties of moisture resistance, termite resistance, reduced maintenance requirements, and long life make it a more contextually appropriate and potentially more sustainable finishing material for kitchen cabinetry, however, in the specific context of Bahria Town, where moisture infiltration and termite infestation are among the most persistent issues in the built environment, PVC foam board's properties make it the more contextually appropriate and potentially more sustainable finishing material for kitchen cabinetry. This research thus confirms the significance of this material which is currently underutilized and requests its inclusion in the general architectural material discourse, procurement process and client advisory in residential design.

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