# Breeze Block: Don’t Call It A Comeback

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**Breeze-block is part of the historic trajectory of Modernism, particularly its many manifestations in sunny, Mediterranean and tropical climates. Under a variety of names, the highly functional and aesthetic concrete blocks being used in construction today are a direct and uninterrupted link to the mid-century architectural movement that popularized them over 60 years ago. Despite that legacy and a superficial uniformity, breeze-block carries deep rooted regional nuances and local taxonomy undeterred by its apparent equatorial ubiquity. Whether in Honolulu, Los Angeles, Miami, Sydney or Madrid, the commonalities shared in production, material and utility have all contributed to the success and the neglect of this uniquely brandless building product.**

The stagnant design qualities of the block used today in large part due to the success of its many original iterations. The historical, material and performative considerations that drove the block to popularity, and that have supported its continued prevalence, have also contributed to the unchanged, under explored and largely under appreciated state of breeze-blocks today. Low construction and material costs, high functionality, and longevity have created a highly static design product even while architecture and design demands for such properties have increased considerably.

This research synthesizes the scattered conditions and terminology related to the history of a specific type of concrete block, proposing that modern materials, manufacturing techniques and analysis support a re-engagement of the original, underlying design conditions that propelled the first breeze-blocks into popularity. As an architectural anachronism the same things that made concrete block take off at the turn of the 19th century- ease of mass production, construction and low expense- are no less relevant than the blocks themselves are today, providing a huge opportunity to study and understand what can be achieved with contemporary tools and materials. Rather than pick-and-choose pre made legacy patterns, designers should instead revisit the performative and aesthetic possibilities that lie within resilient building components such as these.

In Hawaii, where this research and associated projects originated, Modernism appears alive if not well, owed in large part to the ongoing and prevalent use of breeze-block in new construction throughout the Islands. From Home Depot to the local concrete supplier, the block geometries used here and elsewhere today are few, familiar and similar. The designs of these blocks have not changed, and in fact the selection of them has been substantially condensed to a few select designs that can be traced back to the 1940s.

Based on their prevalence and continued use clearly this isn’t a despised design element, but no longer is it studied or thought about the way it once was- it merely exists and is used. Care, thought and consideration by a new generation of designers with access to new technology may be able to revive the original merits of this resilient building element, while new tools and materials may revive both the aesthetic, structural and environmental concerns of the early breeze-block.

## CONTEXT AND NOMENCLATURE

Since their earliest inception, concrete blocks have been referred to by a variety of names. The evolution of this nomenclature provides an important context for their use and development in architecture. A quick survey of contemporary journals, architecture books and manufacturer’s guide reveals the broad use of the term Breeze-block today. The popularity of the term even extends to popular culture and media including a television series in the UK and a song by the pop musician Alt-J . However, as the term has become more colloquial it has also shifted away from its original meaning. While still accurate and descriptive of the building product the name has become a homonym, with ‘breeze’ more commonly used to refer to a behaviour rather than the material of the blocks themselves.

Originally, breeze-block was a trade-specific name which referred to any and all concrete block- a term deeply rooted in the material of the block itself. Another common term for these same blocks that is also rooted in material is cinder-block. Both of these variants can be attributed to one of the two primary materials that are added portland cement in order to produced the concrete that the blocks are made from: fly ash and aggregate. Fly ash, a by-product of the manufacture of steel and concrete itself, is a synonym of breeze, hence the term breeze-block for any and all blocks made from concrete. Cinder is a synonym of clinker which is a common type of aggregate.

Fig 1. La Miniatura by Frank Lloyd Wright 1923, featuring fully penetrated breeze-blocks.

Today the term breeze in breeze-block is commonly associated with very specific type of concrete block: those which have large patterned openings, allowing air (a breeze) to flow through them. This distinction has also made it increasingly common to see breeze-block referred to as ventilation block or screen block which also suggests the movement of air, which are again more closely aligned with the geometry and function of the block rather than its material. Cinder blocks on the other hand is still primarily used to refer to cement blocks which are open in the middle but maintain a solid face and hollow core when stacked vertically.

Much like the early use of breeze-block and cinder-block the Concrete Masonry Unit is now the blanket term to cover a broad range of concrete block, which have been standardized in terms of overall dimensions. So although both breeze and cinder are traditionally both synonyms for the same broad collection of standardized concrete building elements, breeze-block and cinder block are now most often used to refer to specific subsets of CMU.

## CREATION

Concrete blocks began appearing at the turn of the century and a search of trade journals and architecture writing from the to the mid-century will turn up a host of other names for concrete blocks. The majority of these are regional, linked to manufacturer or designer in a variety of ways.

Besser block, a once prominent and branded term for concrete blocks in America and now largely confined to use Australia. It is owed to one of the earliest and largest manufacturers associated with mass produced concrete block. Although the Besser Company produced concrete block on a large scale it and its name grew to notoriety through its founders invention of the modern block tamper machine itself in 1903. Jesse Besser first refined existing versions of manual tamper machines before developing one of the first machines to mass produce concrete block and eventually selling the modern block tamper around the world even today.

## REGIONALLY

The use of localized production and machines is in large part why block material properties and nomenclature remain regional- local companies sprung up producing the blocks themselves en masse while using local materials and designs. Regional names tied to these manufacturers can be seen in many articles and advertisements. A few examples include:

Tileco in Hawaii: screen block. Headwaters in Texas: solar block . St.vrain in CO: 99 Screen. A-1: screen walls. Superlight: decorative block. Greensborough: vintage block. Agusta Block Company: architectural block. And Home depot still refers to them as cinder blocks on their website

And while the names given by manufacturers vary to a wide degree, many of the actual designs and patterns are very similar if not the same. Today we also find a much smaller selection of readily available blocks from these manufacturers. Out of the 15 manufacturers contacted for

this project, the average number of breeze-block patterns readily available was 4 per manufacture, and most were the same ones. This does not mean other types are not available however. Columbia Machine out of Vancouver, Washington for example has a lengthy catalog of block molds which may be purchased and used to produced custom block orders, and even provided services to design your own block mold which local suppliers could use. In talking with local contractors in Hawaii who maintain many of the mid-century buildings broken blocks in need of replacement are often reproduced in foam and then coated or spackled them to match the existing blocks, rather than have a few single blocks custom (re)made.

### "GUTTER RATS"

Architects and designers have influenced the nomenclature for concrete blocks as well. Occasionally they were even eponymous named after their designer, such as "Haver block" in Arizona named for local architect Ralph Haver around 1965, a fact noted by the local chapter of Docomomo and other mid-century enthusiasts. One of the earliest and most well known proponents of concrete block, for which the block was not named after, was Frank Lloyd Wright. Though he called the blocks "that gutter rat" and "the ugliest thing in the world" in his autobiography, he also commonly referred to them as Textile blocks and was experimenting with them as early as 1921.

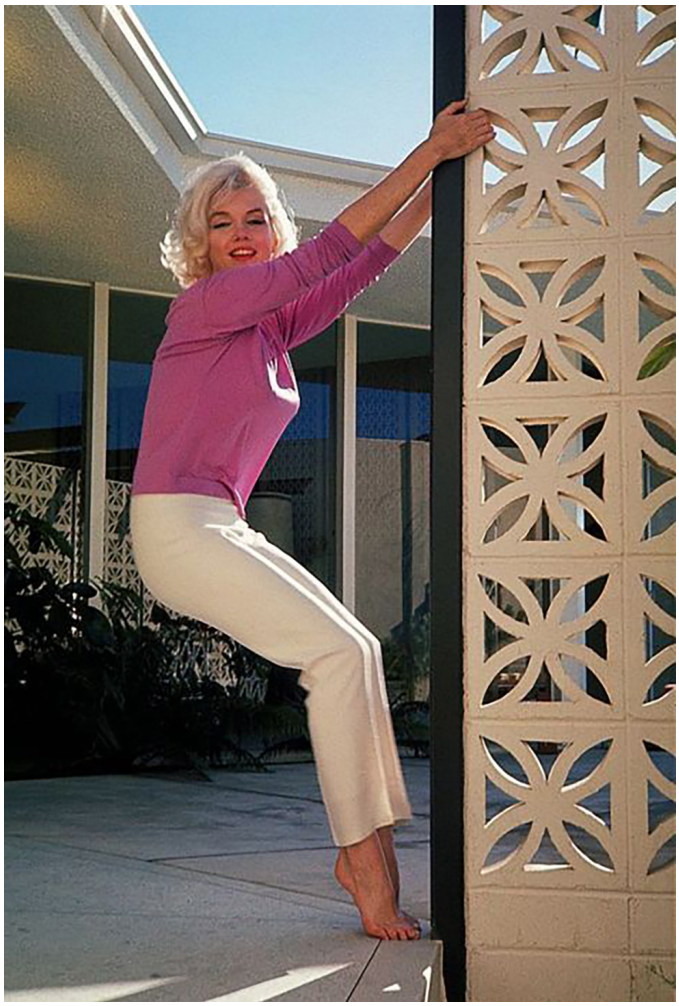

Figure 2: Marilyn Monroe and breeze block in Los Angeles, 1962, by photographer George Barris. Most individual block designs go by many different names with little standardization between manufacturers. See in this image: Block type No.399 by A-1 Block Corp in Florida, Model # 100002873 at Home Depot and 'El Dorado #7" by Superlite in Arizona, "La Costa" by Orco in California, this block type has and is being produced by many others under different names including Snowflake, and Cloverleaf.

Some of the most notable of cement blocks from this time period can be seen in his four Textile Houses. And although he had begun developing building ideas for the block in 1921, the first constructed Textile house was La Minatura which features both textured block and fully perforated block through which he wove steel rods for support.

Soon after the construction of the Textile houses the Art Deco movement surged ahead. The Paris Exposition in 1925 quickly accelerated the movement, which made use of many ornate, mass-produced concrete blocks. Depth and shadow began to evolve with unique, textured concrete blocks. Art Deco design favored symmetry and bold, repetitive geometries, a design aesthetic easily obtainable with breeze-blocks material and fabrication process. And because they were able to be mass-produced they also embodied the technological, machine-age thinking that supported their post-war success as well.

### BLOCKS TO WALLS

Though this research looks primarily at the individual blocks, nomenclature and manufacture, it is important to consider that the concrete block does not often stand alone; they are designed to work in aggregate. FLW considered this while weaving his Textile facade with block, and it is an idea built into the dimensions of modern CMU in order that the blocks may work with other standardized building material in sets. While the typical breeze-block is 12"x12" nominal, it can be grouped in multiples of threes in order to fit with standard 16" CMU ("cinder block") walls.

This can also be seen in many other designers work including Erwin Hauer, who, beginning in the 50s began exploring this block through the brise-soleil, attempting to produce continuous walls and seamless patterns which largely negated the individual block. Though he designed individual blocks, he most often referred to his work as walls and screens.

### CONTEMPORARY RELEVANCE AND STUDIO RESEARCH

From Palm Springs to Miami, many writers and researchers have ascribed their own cities as "breeze-block capitals", asserting the prominence of local block. The work associated with this ongoing research project does not attempt to make subjective comparisons with other cities, and there are many ways to gauge their prominence. However Honolulu certainly ranks among them, not only with one of the greatest densities of breeze-block, but the one of largest ranges of block styles as well. Whether downtown or a residential neighborhood, it is difficult to walk a single block without encountering several varieties of breeze-block being used in any number of configurations. In the two years of this project alone over 70 distinct block types have been discovered in downtown Honolulu alone. Blocks of all types are used to screen windows, conceal and protect equipment, and shade and cool outdoor areas. But from a contemporary designers perspective, the selection (as it currently is)

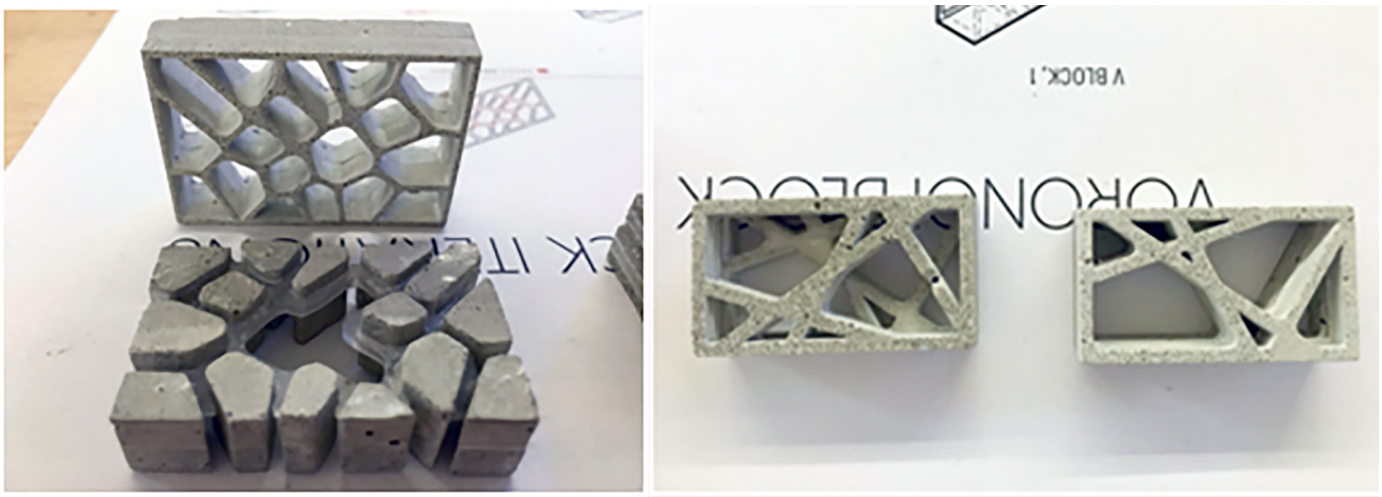

Figure 3. 1:8 scale cast blocks and design explorations. (positive/negative, left. Front/back, right).

of an appropriate block should be much more than an aesthetic one, it should be an environmental and performative one as well.

As such, this project was organized into three phases that highlighted the many design considerations: Discovery as a means of exploring the history though quantitative and typological analysis, Prototype to investigation material, design and fabrication considerations and Serial type to study repetition, mass production and fabrication.

Students were asked to adopt one 'case-study' historical block design and several of their own. They cataloged and refined the geometry of both based on desired functional properties, material constraints and design criteria. Most historical blocks have no identifying marks, and similar appearing designs were made by several manufacturers, so students ascribed building construction dates to the block designs.

A typological database was used to organize blocks by their material, volumetric and design qualities. Bridging the performative/aesthetic divide meant uncovering the solid to void ratio of each case study block. This ratio establishes the weight, permeability, amount of material used, and heat absorption potential of each unique block. These technical considerations can be used to align a particular 'design' with an environmental need as well as a functional (screening) one. For example a block capable of absorbing a large amount of solar heat may be more suited for use in a location exposed to the sun than one in an already shaded space, or one requiring security over thermal conditioning.

Each case-study block design provides distinct design advantages and drawbacks for their unique application. The broad categories of this research phase consisted of: Aesthetics- basic design vocabulary in the composition of the block geometry Aggregation- how the blocks tile, how they can be arranged and how that affects the composition. Volume- Perhaps the most under-studied aspect of the case-study blocks are their solid to void ratios. This is an easy measurement to obtain, and greatly affects nearly all aspects of the block from its ability to screen, its overall strength, the amount of material used or saved in its construction, to its potential to absorb solar radiation.

**PROTOTYPE: TANGIBILITY IN DESIGN AND RESEARCH.**

Prototyping allowed students to gain a material understanding with the blocks and develop a tangible relationship to the weight, feel shape and behavior of them. It is rare for anyone except the builder or mason to interact with an individual block, and a highly unfamiliar experience for most young designers. A single full size block can weigh as much as 45lbs and the construction is not simple process to the uninitiated; form making and working with concrete adds a new dimension to their initial research and thoughts about design. Handling, making and working the concrete opened their eyes to the nature of craftsmen and the concrete/masonry trades. These are highly specialized, difficult things that take time and care to learn and perfect.

At the same time the students were constructing 3d printed versions of their blocks. The relative ease of constructing a 3d printed block meant that the students had more time to work on the actual design of the block, however it also altered their understanding of what they were actually designing. The model does not have the weight feel or qualities of the full size block. It does allow basic shade and shadow studies, and offer a tangible product to begin understanding the design.

Design considerations were tied to developing design vocab, first thinking about this as a simple 2d exercise, next thinking about it as a 3d design, and finally looking at it as a tiling block. As they developed their own design they were asked to think about the lineage and history of the blocks they had studied- why they were the way they were and how they fit into the design language they themselves had learned in first year. Are these blocks simply patterns or is there more to them than that?

The prototyping phase is about material realities and properties associated with the constructability of a design. It is the start of an exploration of the design-fabrication process. This also started a conversation about how the design of something is effected and must be influenced not only by the material it will be made from, but how it is fabricated as well.

**SERIAL TYPE: THE MECHANICS OF REPRODUCING A DESIGN.**

The serial type phase brought together work from the research and prototyping phases, and began to address the mechanics and design implications of reproducing a design on a large scale. While this is not

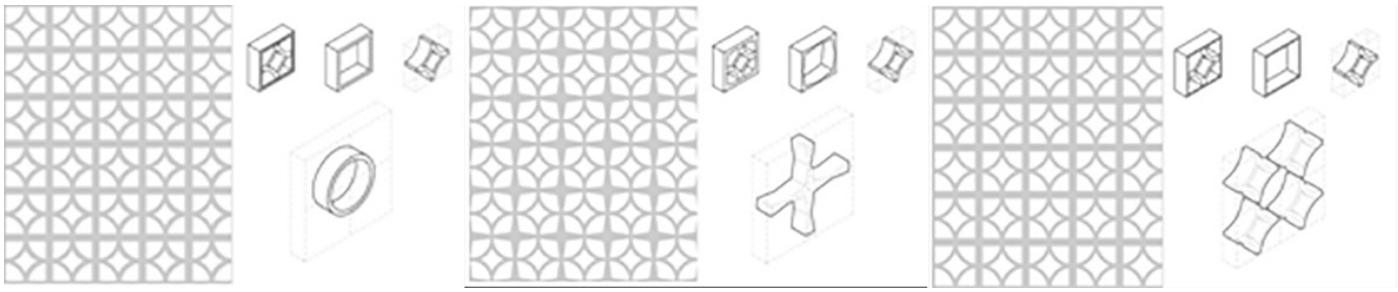

Figure 4: Block detail and tiling studies

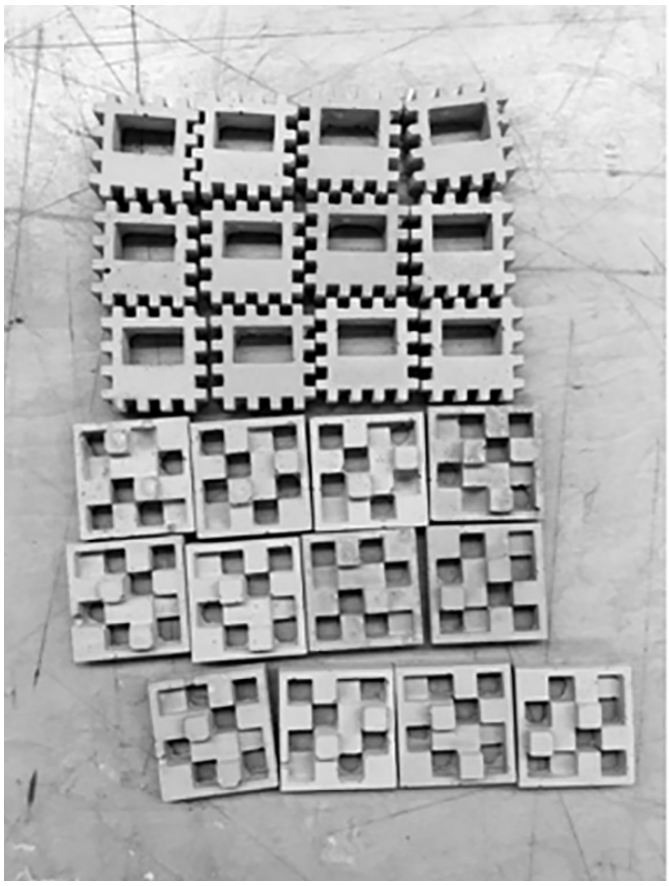

Figure 5. Tiling block and mass production.

often a building-specific concern it is an architectural and construction concern in that the one-off buildings architects produce (and even the reproduced ones) are comprised of mass produced elements. The challenges associated with past and present day mass production and their impacts on design. Most blocks made today fit a modern 4" building module, but are separated from standard CMU dimensions. Because breeze-blocks tend to be thinner than other CMU modules (4" vs 8") and have more void space a wall constructed with breeze-block can be ⅓ to ½ the weight of a standard CMU wall. Visually the walls are dynamic and compelling, owed to the tiling and texture created by light and shadow.

Organization of breeze-blocks in CMU or other construction sets means that careful arrangement and planning take place prior to their incorporation. For example, 3 breeze-blocks are required to be set against 4 standard CMU blocks in a horizontal wall.

Blocks were constructed from cementitious material, and the 3d printer was used again this time to produce a one off injection mold that can be used to make many block. Blocks made from new variations of this materials, such as light weight or aerated cement, were explored as an outlet for rescued material, new appearances, and permit the blocks to be installed in places that were not possible with standard cement.

## CONCLUSION

While there are much deeper theoretical conditions related to the history of cement blocks and architecture the work and research presented in this paper is largely an attempt to synthesize some of the common misconceptions, broad and often overlapping terminology, and conflicting history of breeze-blocks. It supports the development of a project which tangibly explores the legacy, history and production of individual breeze-blocks.

Everything the breeze block stands for- aesthetics, environmental performance, technology and mass production, regional design and fabrication- have contemporary design associations; qualities and conditions that are in demand, being advanced and rigorously studied in all corners of architecture. Advances in materials, fabrication techniques and analysis have not shifted us away from these considerations but have caused designers to overlook important and inarguably prevalent design materials. The design considerations, level of research and thinking, construction and material studies of this project are far reaching and draw attention to the complexity and multifaceted nature of even the simplest and most under observed elements in design and construction. The laymen choosing to build so casually with this is not the same as a designer doing so; we have a choice and the skill to not just invent new things but revisit and reconsider what is already there. While this project revisits the performative and aesthetic possibilities that lie within this lasting building component the greater research project affirms that care, thought and consideration by a new generation of designers with access to new technology and materials may be able to revive the original merits of this resilient building element.

## ENDNOTES


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