


**WRITTEN IN**



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# CONCRETE

If the medium is the message,  
what does concrete tell us?



**C**oncrete, that cold, hard, formless mass, unloved and ubiquitous, is on the rebound. As difficult as it may be for the world at large to imagine, concrete is to architects the most romantic of materials, the embodiment and realization of social and aesthetic ideals.

Used in the building of the Pantheon, there is perhaps no material so resonant of the Modern Movement as concrete. For America, concrete in the 20th century was the material of capital expansion, much as it is in China today. Grain silos on the Great Lakes, Ford's River Rouge plant in Detroit, and the Hoover Dam were each emblematic of American industrial power and the modern world, all built in concrete, each a shrine to American achievement.

For the French and the Europeans, however, concrete was as much romantic inspiration as it was pragmatic imperative. The engineers Maillart and Freyssinet, in pushing the technical limits of *béton armé* — reinforced concrete — were at the same time engaged in an aesthetic of plastic minimalism, creating forms of slender simplicity that would have honored the portfolio of the sculptor Brancusi, their contemporary.

It was the German architect Erich Mendelsohn who, with his photographs of the Buffalo grain silos, brought back to Europe the romance of Modernism cast in concrete. His breathless enthusiasm for “the stupendous verticals of fifty to a hundred cylinders” was conveyed in the stark monochrome of his images, which illustrated the chapter on mass in Le Corbusier's *Towards a New Architecture*.

In this blockbuster manifesto synthesizing architecture, politics, and morality, Le Corbusier proposed that the virtues



Above: Lindemann Center (Paul Rudolph, 1970). Coarse-aggregate concrete was poured into corrugated form liners and bush-hammered.

Below: Viaduct piers, new Central Artery (Wallace Floyd Associates with Stull and Lee, 1992). Rustication detail creates a sense of scale.



of honesty, functionalism, and material progress inherent in the concrete forms of industrial structures could be transferred to the architecture of housing, schools, and offices. Concrete could become the medium through which mass, surface, and plan would be transformed into utopian communalism.

In Le Corbusier's "white" buildings, however, materiality was suppressed in favor of pure form. The "concreteness" of the Villa Savoie (1928-30) is disguised behind the geometric abstraction of white stucco. The Gropius house (1938) in Lincoln, Massachusetts, is conceived in similarly platonic fashion. Internationalism, a facet of Modernism, thus derived its "style" from the universal truths of pure geometry, unencumbered by contingencies of place or climate.

The weather, regrettably, is unforgiving, and rain, pollution, frost, and sunshine take their toll on a pure white building in the form of streaking, spalling, rusting, and peeling. In the face of this reality, purity of expression in architectural concrete had to be redefined, if not reversed. The materiality of the concrete itself would express the essence of the building, complementing, not detracting from, its potential for expressing mass and proportion. *Béton brut* — raw concrete — was at once description and label of the material itself and its expression of mass and volume, the defining characteristics of what came to be called "the New Brutalism."

In postwar France, Le Corbusier realized his first major building in this vein, the Unité d'Habitation in Marseille (1947-52), in which he extols the contingencies of French construction as essential elements in the design: "The defects shout at one from all parts of the structure.... Exposed concrete shows the least incidents of the shuttering, the joints of the planks, the fibres, and knots of the wood." Ten years later,

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Le Corbusier completed the monastery of La Tourette in the countryside outside Lyon, a sophisticated essay in *béton brut* that not only capped his own career, but also served as a model for the generation that followed.

In collaboration with Josep Lluís Sert, Le Corbusier built the Carpenter Center — a "machine for learning" — at Harvard (1961-63) in what was to be his only building in the United States. The stunning juxtaposition of *béton brut* set within the ivied brick and limestone of Quincy Street was as shocking to the public as it was exciting to the profession. President Kennedy had been elected to office in 1960, creating a sense of democratic opportunity and excitement not only in politics but also in technology and the arts. Le Corbusier at Harvard was part of the vibe.

As it had been in the Europe of the '20s and '30s, concrete became the cultural expression of progressive politics and social optimism in the United States of the '60s. Following the completion of the Carpenter Center in 1963, almost all of Boston's concrete buildings were built in the 10 years that followed. From the March on Washington in 1963 to the Supreme Court decision on *Roe v. Wade* in 1973, that decade was one of progress and promise. Boston itself was in the process of emerging from decades of corrupt parochialism to become a beacon of architecture and urbanism, reflective of a reformed and progressive city government. The Beatles, Bob Dylan, and Woodstock were in the vanguard of turning the world upside down. If, as Goethe suggested, architecture is "frozen music," then concrete was also the music of that decade.

The significant buildings of this period fall into three phases. First there was the work by then aging Modern Movement protagonists from the old world: the Carpenter Center; Peabody Terrace; the JFK Federal Building. In the middle phase came two new buildings designed by young radicals from the new world, following in their masters' footsteps: the State Street Bank and the Boston Architectural Center. The third phase started with the completion of Boston City Hall and continued with the New England Aquarium and the Lindemann Center. The Boston Five Cents Savings Bank and Christian Science Center rounded out the decade, the former a superb example of Brutalism in context, the latter an elegant though somewhat pallid version of the Brutalist manifesto.

While City Hall is perhaps the purest expression of the New Brutalism, reminiscent as it is of the disciplined proportionality of La Tourette, perhaps the most extreme version is Rudolph's Lindemann Center (the Health, Education and Welfare Building). Curvaceous and corrugated, the bush-hammered corduroy finish is as relentless inside the building as it is outside, taking to the limit the notion of texture and contingency as an expression of concrete materiality. As a home for the mentally ill, which it is, one would be hard pressed to imagine a more insensitive building, not to say brutal.

By the early 1970s, a failure of nerve set in. The disasters of that era (the Vietnam War; Watergate; the environmental catastrophes of Love Canal and Three Mile Island; Boston's busing crisis) took their toll. In architecture there was a retreat from the Modernist program of social reform through building. The miserable expression of privatization was Po-Mo, a movement without ideals and with no commitment to authenticity in construction or material, the effects of which continue to this day.

Concrete, however, continues to express idealism in building. Because it is so ubiquitous and because it is the product of artifice, being formless without formwork, it remains open to and dependent upon suggestion, intervention, and expression. In contrast to its former vogue, the emphasis now is more upon the finer rather than the coarser qualities of the material. Tadao Ando and Peter Zumthor each favor cast-in-place concrete, focusing on formwork to achieve cabinet-like quality in the finish. Steven Holl's Simmons Hall at MIT is a recent and rare example in the United States of an all-concrete building. Externally, the pre-cast concrete loadbearing wall panels are clad in aluminum acting as an epidermis to the insulation behind. Internally, the finely finished pre-cast surfaces are juxtaposed with the textured cast-in-place concrete of stairways and the "sponge space" voids that permeate the building, creating a dialectic between machined finesse and natural form.

Manufacturers are producing high-performance concrete that is not only environmentally more efficient (consuming less energy and giving off less CO<sub>2</sub>) but qualitatively transformed. "Ductal" is an ultra-high-density concrete without steel reinforcement and of almost ceramic-like finish that is impermeable to moisture and the ravages of frost.

Manufactured by Lafarge to seal aging nuclear reactors, it can now be seen in ultra-thin bridges and as a diaphanous screen for a museum in Marseille. Another innovation, "LitraCon" is a translucent concrete permeated with a matrix of fiber-optic cables that allow light and shadow to penetrate mass and plane.

For all the talk about honesty in the Modern Movement, the social and political messages loaded upon the concrete messenger were at their worst damaging and at best, hyperbole. Refreshingly, concrete no longer represents a brave new world, achieving instead its integrity through research and craftsmanship — much like any other material. □

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## Boston: The Concrete Decades

<b>1963</b>	<b>Carpenter Center (Harvard)</b> Le Corbusier (with Sert, Jackson, and Gourley)
<b>1964</b>	<b>Peabody Terrace (Harvard)</b> Josep Lluís Sert <b>Green Building (Earth Sciences, MIT)</b> I.M. Pei and Associates <b>JFK Building</b> Walter Gropius (TAC) <b>State Street Bank</b> Stahl Associates with Hugh Stubbins <b>Eastgate Married Students' Housing (MIT)</b> Eduardo Catalano
<b>1966-68</b>	<b>The Children's Hospital</b> The Architects Collaborative
<b>1967</b>	<b>Boston Architectural Center</b> Ashley, Myer and Associates
<b>1968</b>	<b>70 Federal Street</b> Stahl Associates
<b>1968-73</b>	<b>Christian Science Center</b> I.M. Pei and Associates; Cossuta and Ponte; Sasaki, Dawson, DeMay
<b>1969</b>	<b>Boston City Hall</b> Kallmann, McKinnell and Knowles
<b>1969</b>	<b>New England Aquarium</b> Cambridge Seven Associates
<b>1969</b>	<b>King School (Cambridge)</b> Sert, Jackson and Associates
<b>1969</b>	<b>Design Research (Cambridge)</b> Benjamin Thompson Associates
<b>1970</b>	<b>Government Center Garage</b> Kallmann, McKinnell and Knowles <b>Health, Education, Welfare Center (Lindemann)</b> Paul Rudolph
<b>1971</b>	<b>Harbor Towers</b> I.M. Pei
<b>1972</b>	<b>Boston Five Cents Savings Bank</b> Kallmann, McKinnell and Knowles <b>Gund Hall (Harvard)</b> John Andrews <b>Martin Luther King Jr. School (Cambridge)</b> Sert, Jackson and Associates <b>1st and 2nd Church in Boston</b> Paul Rudolph
<b>1975</b>	<b>Cambridge Rindge and Latin School</b> Eduardo Catalano