MEGASTRUCTURA CANADENSIS: RECONSIDERING THE DINOSAURS OF THE MODERN MOVEMENT[1]

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"The Mega-structure is dead—and thus passes into the History of Architecture."[2]

Reyner Banham, 1973

In the 1960s, British architectural historian and critic Reyner Banham and his contemporaries developed a fascination with the possibility of buildings at an urban scale that could be indeterminate: accommodating growth, change, and even opportunities for individual expression. The megastructure has been broadly characterized as a modular, extensible, prototypical city structure.[3] While Banham was a protagonist within the movement itself, his fascination with the architectural avant-garde led him to quickly abandon the megastructure, ultimately declaring the buildings to be the "dinosaurs of the Modern Movement."[4]

While the megastructure movement of the 1960s and 1970s was international in scope, Canada was particularly fertile ground for the megastructure. In an environment of dynamic economic expansion, urbanization, as well as cultural and social transformation, there was an expression of national and regional identities. The legacy includes internationally celebrated projects such as Toronto's Scarborough College, Hamilton's McMaster Health Sciences Centre, and Montreal's Habitat '67. Perhaps no other building type, if one can indeed call megastructure a type, is more closely associated with large-scale institutional architecture of the 1960s

FIG. 1. EXPRESSING VALUES REFLECTED IN THE ROYAL COMMISSION ON HEALTH SERVICES OF 1964, MCMASTER HEALTH SCIENCES CENTRE (CRAIG, ZEIDLER AND STRONG, 1968-1972) SIGNALLED A SHIFT TOWARD SUPPORTING RESEARCH, TEACHING AND PATIENT CARE IN AN INTERDISCIPLINARY, INTEGRATED MANNER. | ARCHIVES OF HAMILTON HEALTH SCIENCES AND THE FACULTY OF HEALTH SCIENCES, MCMASTER UNIVERSITY, FHS PUBLIC RELATIONS DEPARTMENT, PHOTOGRAPH COLLECTION, 1980.11.7A.11.1.

FIG. 2. UNIVERSITY OF WINNIPEG'S CENTENNIAL HALL (MOODY MOORE DUNCAN RATTRAY PETERS SEARLE CHRISTIE, 1965-1972) WAS DESCRIBED BY BANHAM AS "THE RARE EXAMPLE OF A BUILT MEGASTRUCTURE WHICH GENUINELY OVERSAILS AN EXISTING GROUND-LEVEL ENVIRONMENT, AS FRIEDMAN OR ISOZAKI PROPOSED, WHILE LEAVING IT ALMOST UNTOUCHED . . . REMARKABLY LIKE A REALIZATION OF FRIEDMAN'S *URBANISME SPATIAL*." | UNIVERSITY OF MANITOBA LIBRARIES, DEPARTMENT OF ARCHIVES AND SPECIAL COLLECTIONS.

FIG. 3. PLACE BONAVENTURE (AFFLECK, DESBARATS, DIMAKOPOULOS, LEBENSOLD, SISE, 1964-1967) ILLUSTRATES THAT MEGASTRUCTURAL AMBITIONS TOOK A VARIETY OF FORMS, AND IN CANADA WERE ASSOCIATED WITH RELATED CURRENTS IN ARCHITECTURAL DISCOURSE, PARTICULARLY BRUTALISM. | JAMES ASHBY.

and 1970s in Canada. Today these places illustrate the aspirations for improved access to higher education, health care, justice, the arts, and even recreation (fig. 1). If one considers all of the megastructures cited by Banham in his seminal book, *Megastructure: Urban Futures of the Recent Past*,[5] of the thirty-six international examples that survive to this day, nine are located in Canada.

Based on an analysis of surviving examples as well as recent scholarship on Banham's work, this paper highlights the built legacy of the megastructure movement in Canada, offers a characterization of the megastructure, and reflects upon the relevance of these "dinosaurs" today and into the future.

MEGASTRUCTURES IDENTIFIED BY BANHAM*

Simon Fraser University, Burnaby, British Columbia
Erickson Massey, phase one: 1963-1965

Housing Union Building, University of Alberta, Edmonton, Alberta
Diamond and Myers Architects with R.L. Wilkin Architect, 1969-1971

Centennial Hall, University of Winnipeg, Winnipeg, Manitoba
Moody Moore Duncan Rattray Peters Searle Christie, 1965-1972

McMaster Health Sciences Centre, Hamilton, Ontario
Craig, Zeidler and Strong, 1968-1972

York University, Toronto, Ontario
UPACE Ltd., 1962-1972

Scarborough College, Toronto, Ontario
John Andrews Architect and Page & Steele, 1963-1969

Place Bonaventure, Montreal, Quebec
Affleck, Desbarats, Dimakopoulos, Lebensold, Sise, 1964-1967

United States Pavilion (Biosphere), Montreal, Quebec
R. Buckminster Fuller and Shoji Sadao, 1965-1967

Habitat '67, Montreal, Quebec
Moshe Safdie with David, Barott, Boulva, 1962-1967

* From west to east, these are the Canadian examples identified by Banham in *Megastructure: Urban Futures of the Recent Past*, which survive to this day.

MEGASTRUCTURE IN CONTEXT

The megastructure emerged from the Modern Movement in architecture and city planning beginning in the late 1950s. There was a reaction against the urban planning principles of the earlier Modern Movement, which advocated separate zones for different activities. As Zhongjie Lin has observed: "The 1960s . . . signaled a transition from a period dominated by a unified paradigm in architecture and urbanism to a new era characterized by multiple visions and competing ideologies which opened up possibilities for exploring new approaches to urbanism."[6]

The megastructure movement sought to express urban design and architectural ambitions in various forms of vast, interconnected complexes of buildings that would accommodate thousands of persons and create dynamic urban environments. Megastructure is associated with a number of somewhat self-contained avant-garde groups: the Japanese Metabolists, the French *urbanisme spatial*, the Italian *Citta-Territorio*, and Archigram of Britain.[7] Individual contributors included Buckminster Fuller, Yona Friedman, and Constant Nieuwenhuys. The key protagonists coalesced somewhat

around the international collaborative Team 10. In Europe, they were reacting to needs for mass housing, criticizing the functionalist architecture and urban planning of the earlier Modern Movement, engaging consumer society and pop culture, and embracing influences as diverse as the biological sciences and cybernetics.

While the context in Canada was different, and the goal was building a civil society based on social democratic values, architects explored similar architectural themes (fig. 2). Anticipating the needs of the baby-boom generation, there was considerable government interest in Canada's development in the post-war era, and extraordinary investment to build the required infrastructure and institutions. Broadly speaking, this gave architects unprecedented opportunities to build on a grand scale, within the context of an openness to new ideas.

THE BUILT LEGACY

The Canadian megastructures identified by Banham exist within an international collection that includes London's Barbican Estate (Chamberlin, Powell and Bon, 1965-1976), the Free University Berlin (Candilis, Josic, Woods, Schiedhelm and Prouvé, 1967-1973), and Kofu's Yamanashi Press and Broadcasting Centre (Kenzo Tange, 1962-1966). The architects and designers responsible for megastructures—Denys Lasdun, Renzo Piano, Buckminster Fuller, and Ralph Erskine among others—were some of the most influential of their time. With respect to the Canadian contribution, the projects garnered international attention and were featured in journals in the United States, Europe, and Japan.

In Canada, the undercurrent of growth and change fostered an interest among architects in indeterminacy. Eberhard Zeidler claimed that the McMaster Health Sciences Centre "provides an environment into which anything desired can be put over the next 100 years."[8] Of Habitat '67, Moshe Safdie wrote: "Anything that limits flexibility is problematic, because everything inevitably changes."[9] This interest in indeterminacy intersected with opportunity, and architects explored architectural strategies for flexibility (for example: McMaster Health Sciences Centre), adaptability (Housing Union Building), and extensibility (Simon Fraser University) in the design of megastructures across Canada.

There was a concurrent interest emerging, since characterized as Brutalism. The narratives of megastructure and Brutalism are intertwined, particularly in Canada, as evident in Scarborough College, York University, and Place Bonaventure (fig. 3). With their highly sculptural form and a sense of solidity and permanence, examples of Brutalism illustrate sophistication in the expression of the inherent qualities of building materials and their fabrication, particularly concrete. Complimenting some of the qualities of megastructure, Brutalism "reflects the democratic attributes of a powerful civic expression—authenticity, honesty, directness and strength."[10]

Looking back at the built legacy, there is the question of why Banham excluded certain buildings, particularly those that have subsequently entered into the discourse of megastructure. In Canada, there is Lethbridge University (Erickson Massey, 1971), Ontario Place (Craig Zeidler Strong, 1968-1971), and Place du Portage III (David, Boulva, Dimakopoulos, 1972-1978), amongst others.

Although Banham was a protagonist within the megastructure movement, he was quick to abandon it. As early as three years prior to the publication of his book, and at a time when many megastructures were in the design or construction stage, Banham had begun to eulogize the movement. He pronounced its "time of death" at a lecture in Naples, in early 1973 (fig. 4).

To better understand the megastructure movement, in particular its surviving examples, it is instructive to consider the broader legacy, that is, the built legacy beyond the time when Banham had begun to lose interest. While Banham's book remains the most comprehensive survey of the movement to date, a broader survey of the legacy would include those buildings from the late 1960s and early 1970s that he either ignored or overlooked, and those that were not complete until a decade later. It is a consideration of this broader collection of buildings, and the benefit of the distance of time, which will lead to an understanding of the megastructure that might influence future-oriented conservation efforts.

TOWARD A NEW DEFINITION

Today, the term megastructure is applied to an increasingly wider range of buildings and structures, notably excessively tall buildings such as the Petronas Twin Towers in Malaysia.[11] This demonstrates the elasticity of the definition or perhaps the lack of precision in its application. Even Banham, largely credited with characterizing megastructure, was reluctant to define it. His initial attempt may appear in his research notes: "Format: horizontal," "Basis: transportation," "Period: 1959-1965," "Ambition: urban," "Finance: mixed," and "Myth: adaptability."[12] The megastructure was described in terms of its form, functions, historical period, objectives, economics, and its unfulfilled promise.

That said, in his book Banham avoided making his own specific definition. He

FIG. 4. FROM HIS INTERNATIONAL SURVEY, BANHAM OMITTED THE ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE (EPFL) (ZWEIFEL AND STRICKLER, 1970-1982), ALONG WITH OTHER SIGNIFICANT CONTRIBUTIONS TO THE LEGACY OF THE MEGASTRUCTURE MOVEMENT SUCH AS LETHBRIDGE UNIVERSITY (ERICKSON MASSEY, 1969-1971) AND ONTARIO PLACE (CRAIG ZEIDLER AND STRONG, 1968-1971), PERHAPS BECAUSE HE HAD STARTED LOSING INTEREST BY 1973, OR EVEN EARLIER. | JAMES ASHBY.

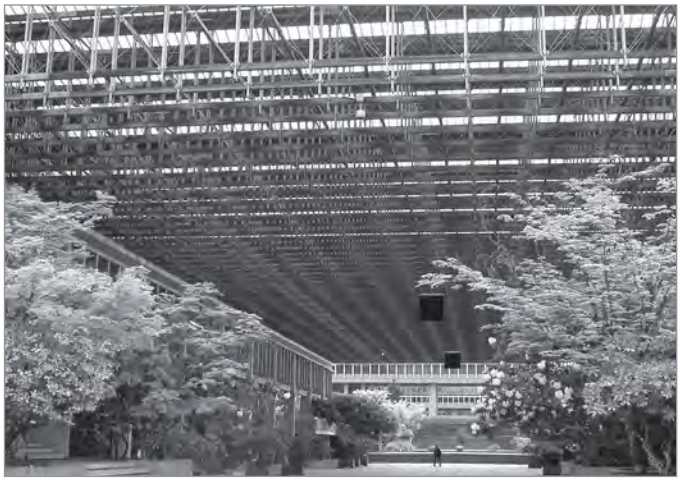

FIG. 5. SIMON FRASER UNIVERSITY (ERICKSON MASSEY, PHASE ONE, 1963-1965) IS AN EXCELLENT ILLUSTRATION OF THE VARIOUS THEMES AND CHARACTERISTICS OF MEGASTRUCTURE, FROM THE GOAL OF INTERDISCIPLINARY EDUCATION TO EXTENSIBILITY ACHIEVED BY PLUGGING NEW BUILDINGS ONTO AN ORGANIZING SPINE. | JAMES ASHBY.

opened his discussion of the movement by referring to two existing definitions, that of metabolist Fumihiko Maki, the first to define the megastructure in writing, who described it as "a large frame in which all the functions of a city or part of a city are housed . . . made possible by present-day technology,"[13] and that of librarian Ralph Wilcoxen, who characterized the megastructure with respect to its great size, modularity, extensibility, attachment of units to a structural frame, and primary versus secondary components.[14] Banham went on to identify two further themes: "different rates of obsolescence in the different scales of structure and the notions of flexibility, change, and feedback."[15]

Banham's work, such as it is, has been the subject of considerable scholarly debate suggesting that the definition was either too limited or too loose. Over the years, the definition of megastructure has become increasing elastic, and this hinders an understanding of the legacy of the movement, particularly the built legacy of the 1960s and 1970s that survives today.

With the benefit of forty years' distance and increasing scholarship, it is possible to attempt to re-define the megastructure. Rather than establishing a definition of megastructure and then determining which buildings conform to it, an alternative approach is to determine which themes or qualities are shared by the built examples that survive to this day. In the interest of defining megastructure to aid future-oriented activities, the following is a tentative list of themes that link this wide variety of buildings found across Canada.

1. *Critique of, yet indebtedness to, the Modern Movement* – A megastructure is a critique of the architecture and urban planning of the earlier Modern Movement, yet it is an evolution of its social, aesthetic, and technical principles and strategies.

2. *Public sector patrons* – Government or quasi-governmental organizations and institutions were those most likely to commission megastructures. At the time, the public sector was the patron best able to conceive and fund projects of such size and complexity, and see them through the many years from design to occupancy.

3. *Social democratic values* – A megastructure reflects a vision of a civil society based on social democratic values, with improved access to education, health care, justice, the arts or recreation; or a combination of these.

4. *Monumentality and urban design ambition* – More than merely a very large building, a megastructure combines architectural as well as urban design intentions, in an attempt to create a piece of the city or a version of the city in microcosm, and accordingly has a significant impact on its adjacent environment.

5. *Single large building or interconnected buildings* – A megastructure is a single large building or a number of buildings that are interconnected to form a large complex.

FIG. 6. RECENT THEORETICAL SPECULATION, SUCH AS "BATTLE OF THE MEGASTRUCTURES 1956," WHICH COMBINES VICTOR GRUEN'S SOUTHDALE CENTER AND CONSTANT'S NEW BABYLON, IS EVIDENCE OF THE RENEWED INTEREST IN MEGASTRUCTURE WITHIN INTERNATIONAL CONTEMPORARY ARCHITECTURAL DISCOURSE. | WAI ARCHITECTURE THINKTANK.

FIG. 7. HABITAT '67 (MOSHE SAFDIE WITH DAVID, BARROTT, BOULVA, 1962-1967) IS EXCEPTIONAL AMONG CANADIAN MEGASTRUCTURES IN ITS DESIGNATION AS *MONUMENT HISTORIQUE CLASSÉ* (2009). | JAMES ASHBY.

6. *Multidisciplinary design and construction* – A megastructure is developed through the integration of planning, architecture, engineering, landscape architecture, industrial design, and the fine arts, along with manufacturing and construction management expertise.

7. *Densification and hybridization of uses* – A megastructure brings together a number of complementary uses or functions, designed to support each other.

8. *Encouragement of community and interdisciplinary exchange* – With the goal of a rich experience based on exchange, interconnectedness, and avoidance of traditional hierarchies, a megastructure attempts to establish a form of community or communities.

9. *Horizontal emphasis* – A megastructure favours horizontality in its overall form, where possible, with implicit lateral expansion.

10. *Stratification of circulation and artificial ground* – A megastructure is multi-levelled with respect to transportation or circulation, and thus often creates an artificial ground above the terrain, the water, or the air.

11. *Indeterminacy* – A megastructure demonstrates a strategy to accommodate change or growth or, at the very least, a symbolic expression of indeterminacy.

12. *Expressed structural frame with architectural and mechanical subsets* – A megastructure has a hierarchy of systems, typically a primary, permanent structural system and a secondary, less permanent set of architectural and service elements.

13. *Industrialized and prefabricated technologies* – A megastructure favours building assemblies and materials that are industrialized and prefabricated, with the intention of taking advantage of economies of scale.

14. *Incompleteness* – Oftentimes a megastructure was not constructed as originally designed, and is more likely to be a smaller or partial version of the original, ambitious conception.

In addition, to echo Banham's observation, no single example of megastructure meets all of the criteria[16] (fig. 5).

RENEWED INTEREST

In recent years, there has been a renewed interest in megastructure within contemporary architectural culture (fig. 6). A key contribution was Kenneth Frampton's discussion of "megaform"[17] from 1999 onward, in which Vancouver's Robson Square Law Courts building (Erickson, 1979-1983) was a frequently cited example. The 1990s also witnessed the development of theories of landscape urbanism[18] and landform building,[19] two specific but interrelated streams of recent

architectural speculation, each of which is indebted to the megastructure movement, especially the earlier unbuilt work.

With regards to shaping the emerging metropolis, Sabrina Van der Ley has observed: "For the new industrial cities currently forming in Asia, megastructures might offer a more appropriate alternative."[20] In Shenzhen, China, the Vanke Center (Steven Holl, 2006-2009), also known as the horizontal skyscraper, has been a key example within this discourse. Similarly, Helsinki's Kamppi Center (Juhani Pallasmaa with others, 2002-2006) has been described as a twenty-first-century megastructure, due to its combination of bus terminal, retail, offices and housing, along with its linear form.

Ian Abley speculated on the subject of sustainable development: "Could our very predilection for 'sensitive' diminutive design be causing us to completely overlook the potential of the megastructure?"[21] With examples from the megastructure movement continuing to provoke new thinking about architecture, urbanism, and sustainable communities, surely the safeguarding of the surviving examples must be a priority (fig. 7).

STEWARDSHIP

The challenges of conserving megastructures are considerable, and some of these are well known. Megastructure, as part of modern heritage, is not immune from the familiar specter of threat. In the Cronocaos exhibit of 2010, the Office for Metropolitan Architecture (OMA) observed: "Open season has been declared on postwar social architecture."[22] There is the related issue of public perception, and Scotland's Cumbernauld Town Centre (Geoffrey Copcutt, 1963-1967) is arguably an extreme example of polarizing opinions. From a professional perspective, Cumbernauld was identified by the United Kingdom's national committee of the International Council on Monuments and Sites (ICOMOS) as a significant example of twentieth-century architecture in Britain,[23] while from a populist perspective, it was "featured in the Idler Book of Crap Towns, which described it as a 'Kafkaesque urban hellhole' and nicknamed it the 'Kabul of the North.'"[24] Megastructures still offer the opportunity and challenge of engaging the original designer, and London's Brunswick Centre (1967-1972) was recently rehabilitated with the involvement of its architect, Patrick Hodgkinson. There are considerable technical challenges to address; an extreme example being the recent rehabilitation of the Free University Berlin, where Foster + Partners replaced Jean Prouvé's failed building envelope of weathering steel panels with a new system in bronze. Megastructures are also prone to gentrification as seen at Sheffield's Park Hill (Lynn and Smith, 1957-1961). Public housing and the largest listed building in Europe, Park Hill has undergone rehabilitation in which it was stripped back to its structural frame and converted to luxury apartments. More traditional approaches of conservation-led management are in place elsewhere (fig. 8). London's Barbican Estate benefits from statutory Heritage protection, conservation guidelines, and an active tenants' and residents' association.

FIG. 8. LONDON'S ALEXANDRA ROAD ESTATE (NEAVE BROWN, 1972-1978) IS EXEMPLARY AMONG MEGASTRUCTURES IN BENEFITING FROM STATUTORY HERITAGE PROTECTION FOR ITS BUILDINGS AND ITS CULTURAL LANDSCAPE, AS WELL AS GUIDELINES AND PLANS FOR CONSERVATION-LED MANAGEMENT. | JAMES ASHBY.

Despite the fact that each megastructure usually has a single owner, in each case the multiple stakeholders can create considerable pressure for change. With respect to the evolution of megastructures, Banham observed that "megastructuralists generally and genuinely hoped such processes could take place—but within a framework created by professional architects and reflecting the monumental and aesthetic values of professional architecture."[25] If there is specificity to the conservation of megastructures, perhaps it is in reconciling flexibility, adaptability, and extensibility with conservation principles that advocate minimum intervention.[26]

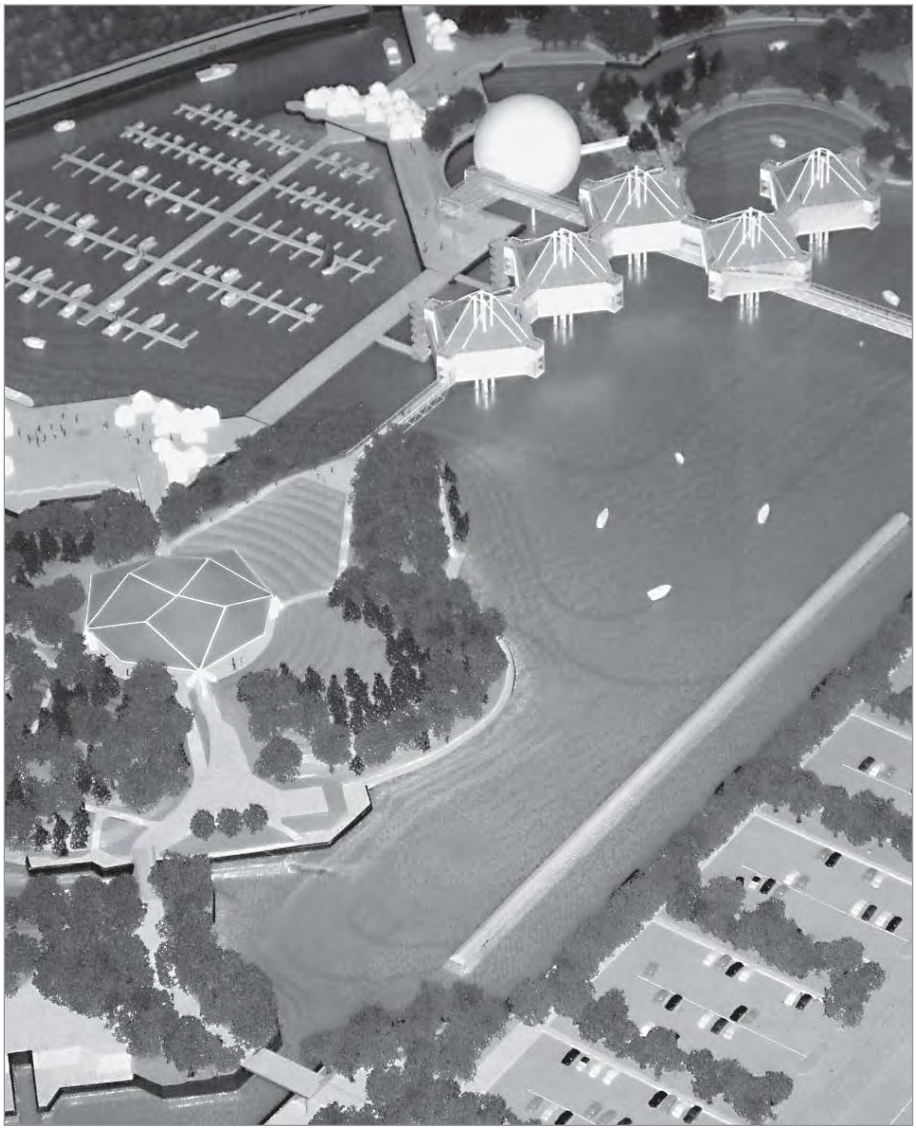

FIG. 9. ONTARIO PLACE (CRAIG ZEIDLER AND STRONG, 1968-1971), LIKE OTHER EXAMPLES OF MEGASTRUCTURE THAT EXPRESSED THE VALUES OF THE 1960S AND 1970S IN WAYS THAT GARNERED INTERNATIONAL ACCLAIM, HAS FACED AN UNCERTAIN FUTURE LESS THAN TWO GENERATIONS AFTER ITS OPENING. | JAMES ASHBY.

CONCLUSION

From the mid-1960s to early 1970s, the megastructure found fertile ground within Canada. At the intersection of urbanization, economic expansion, government investment, and the openness to new ideas shaping postwar society, architects found opportunities in Canada to explore international currents in architectural and urban design that had emerged in the late 1950s and early 1960s, among various avant-garde groups.

Within an international context there is a significant Canadian contribution to the megastructure movement: not just quantity, but considerable quality and diversity of approaches. Many of the buildings garnered international attention at the time, and they remain among the most noteworthy examples of architecture and urban design of the postwar era in Canada.[27]

Several decades after the megastructure movement has ended, the legacy is provoking architects and urbanists to speculate about how future cities might be shaped. This interest in the surviving examples highlights their importance and relevance today. There is an implicit obligation for the responsible stewardship of the built legacy, with heritage conservation seen as a future-oriented activity (fig. 9). While respecting the case-specificity of conservation, considering the broad collection of international examples and the various approaches to stewardship would be beneficial in overcoming challenges.

Perhaps most importantly, the legacy of the megastructure movement is compelling evidence of Canada emerging in the postwar era, an important phase in the development of national and regional identities. Shape was given to a set of values, which reflected a vision of an open, pluralistic society based on social democratic principles. While more research is needed to understand these buildings, the values they represent, the communities they foster, and the stewardship strategies, perhaps it is not too late "to dig megastructure back out of the rubbish heap of history where Banham had too hastily dumped it."[28]

NOTES

1. The author acknowledges with gratitude the assistance of Jacqueline Hucker, Steven Mannell, and Andrew Waldron, and the support of the Getty Conservation Institute.

2. Banham, Reyner, lecture notes for seminars in Naples, January 30 - February 1, 1973, located within the Reyner Banham Papers, "Megastructure, 1961-1982," Series 1, Book

Manuscripts, box 6, folder 2, Getty Research Institute, Los Angeles.

3. Relph, Edward, 1987, *The Modern Urban Landscape: 1880 to the Present*, Baltimore, Johns Hopkins University Press, p. 243.
4. Banham, Reyner, 1976, *Megastructure: Urban Futures of the Recent Past*, London, Thames and Hudson, p. 7.
5. *Ibid*.
6. Lin, Zhongjie, 2010, *Kenzo Tange and the Metabolist Movement: Urban Utopias of Modern Japan*, New York, Routledge, p. 8.
7. Frampton, Kenneth, 2008, "Frames to Frameworks," in Alan Colquhoun (ed.), *Essays in Architectural Criticism*, London, Black Dog, p. 120.
8. Royal Architectural Institute of Canada, 1971, "Steel: Who Builds With It and Why?" *Architecture Canada Newsmagazine*, vol. 48, no. 565, p. 12.
9. Safdie, Moshe, 2013, "Habitat '67," *CLOG: Brutalism*, p. 76.
10. Kubo, Michael, Chris Grimley, and Mark Pasnik, 2013, "Brutal / Heroic," *CLOG: Brutalism*, p. 166.
11. Porter, Tom, 2011, "Megastructure," in Enn Ots (ed.), *Decoding Theoryspeak: An Illustrated Guide to Architectural Theory*, London - New York, Routledge, p. 147.
12. Reyner Banham Papers, "Megastructure, 1961-1982."
13. Maki, Fumihiko, 1964, *Investigations in Collective Form*, St. Louis, Washington University.
14. Wilcoxen, Ralph, 1968, *A Short Bibliography on Megastructures*, Exchange Bibliography no. 66, Monticello (IL), Council of Planning Librarians.
15. Frampton : 120.
16. "Obviously it would be rare to find the complete register of all these forms and concepts present, intentionally or otherwise, in any one building . . ." (Banham : 8).
17. Frampton introduced *Megaform as Urban Landscape* as a Raoul Wallenberg Lecture, A. Alfred Taubman College of Architecture and Urban Planning, University of Michigan, Ann Arbor, 1999.
18. An urban planning theory, proposing that landscape rather than architecture should be the generator of urban form, was crystallized in 1997 at a Chicago conference.
19. The book followed a conference at Princeton University: Allen, Stan and Marc McQuade (eds.), 2011, *Landform Building: Architecture's New Terrain*, Baden, Switzerland; Princeton (NJ) Lars Müller Publishers; Princeton University School of Architecture.
20. Van der Ley, Sabrina and Markus Richter, 2008, *Megastructure Reloaded: visionäre Stadtentwürfe der Sechzigerjahre reflektiert von zeitgenössischen Künstlern* [Visionary Architecture and Urban Design of the Sixties Reflected by Contemporary Artists], Ostfildern, Hatje Cantz, p. 31.
21. Abley, Ian, 2006, "Introduction: Things Will Endure Less Than Us," *Manmade Modular Megastructures*, AD (Architectural Design), vol. 76, no. 1, p. 6.
22. OMA, "Cronocaos," Venice Biennale, 2010.
23. "Cumbernauld Lauded," *Architect's Journal*, September 5, 2002.
24. "Cumbernauld: One Man's Kabul of the North is Another Man's Triumph of Design," *The Scotsman*, January 24, 2009.
25. Banham : 9.
26. These issues are addressed more fully in: Ashby, James, "Flexible, Adaptable, Extensible and Indeterminate: The Late Modern Megastructure and Conserving its Legacy in Canada," paper presented at the 12th International Docomomo conference, Espoo, Finland, August 2012 [publication pending].
27. Habitat '67, Simon Fraser University and Robson Square have garnered the Royal Architectural Institute of Canada's *Prix du XXe siècle* recognizing the enduring excellence of nationally significant architecture.
28. Van der Ley and Richter : 31.