

# Is Sustainability Reorienting the Visual Expression of Architecture?

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## Article abstract

Bien que la durabilité soit aujourd'hui devenue un impératif et un concept clef motivant les réorientations que connaissent les pratiques et théories de la conception, peu de recherches se consacrent à la compréhension de son impact sur le « design thinking » et sur la culture. Cet article enquête sur le design durable entendu comme culture visuelle émergente en architecture. Nous explorons la façon dont les concepteurs vont au-delà des normes environnementales afin de conserver dans leurs projets un équilibre créatif entre forme et contenu, entre éthique et esthétique. Nous analysons un corpus de concours organisés récemment dans les champs de l'architecture, du paysage et de l'urbanisme et avançons que les concours sont à la fois des « laboratoires » pour les concepteurs et des dispositifs épistémologiques pour les chercheurs, à même de révéler les transformations majeures des pratiques et valeurs de design.

# Is Sustainability Reorienting the Visual Expression of Architecture?

Carmela Cucuzzella

Bien que la durabilité soit aujourd'hui devenue un impératif et un concept clef motivant les réorientations que connaissent les pratiques et théories de la conception, peu de recherches se consacrent à la compréhension de son impact sur le «design thinking» et sur la culture. Cet article enquête sur le design durable entendu comme culture visuelle émergente en architecture. Nous explorons la façon dont les concepteurs vont au-delà des normes environnementales afin de conserver dans leurs projets un équilibre créatif entre forme et contenu, entre éthique et esthétique. Nous analysons un corpus de concours organisés récemment dans les champs de l'architecture, du paysage et de l'urbanisme et avançons que les concours sont à la fois des «laboratoires» pour les concepteurs et des dispositifs épistémologiques pour les chercheurs, à même de révéler les transformations majeures des pratiques et valeurs de design.

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1. The World Business Council on Sustainable Development (WBCSD) states that, “Companies committed to eco-efficiency endeavor to produce goods and services using fewer resources and generating less waste and pollution. Research has found that eco-efficiency measures pay big dividends in cost-savings” (WBCSD, Milestones, “www.wbcd.org/about/history.aspx”). The WBCSD advocates the strategy of eco-efficiency as the dominant approach to address the “unsustainability” crisis.

The United Nations Environment Programme (UNEP) recognizes that in a growing number of disciplines, sustainability represents a common concern addressing not only the environmental, but also the economic and social dimensions of development. At the international level, “sustainable development” has become increasingly congruent with “eco-efficiency,” which refers to “creating more value with less impact.”<sup>1</sup> However, William McDonough and Michael Braungart, among others, have critiqued eco-efficiency as the dominant strategy for sustainability because of its failure to adopt a complex worldview.<sup>2</sup>

In the design disciplines, authors such as Sim Van der Ryn, Stuart Cowan, and David Orr advocate for a more complex understanding of the connections between the material and formal choices made in designing sustainably for the built environment and their socio-cultural implications.<sup>3</sup> Tony Fry calls for an approach to sustainability that breaks with traditional definitions and that, rather than focus on reducing impacts alone, adopts a *redirective* strategy: one that redirects unsustainable human habits toward those that can be sustained over time, while improving quality of life.<sup>4</sup> He states that the term *sustainability* is “a means to secure and maintain a qualitative condition of being over time.”<sup>5</sup>

The wide range of definitions of sustainability makes the term a fertile ground for misappropriation of its principles, which include environmental efficiency, social equity, cultural diversity, and environmental viability. Indeed, in Canadian design competitions for cultural buildings and public spaces today, the sustainable development requirement is increasingly defined only with environmental certifications, specifically Leadership in Energy and Environmental Design (LEED).<sup>6</sup> LEED is the North American green building rating system. It is a point-based checklist in which each indicator has equal weight. This checklist is the same across Canada, a paradox, since the different climates require different treatments of site and building. Moreover, the point system may result in designers trying to obtain the most points rather than design the greenest building. LEED is both increasingly widespread because of its quasi-quantitative clarity and dreaded for its inherent reductive character and qualitative weaknesses in design projects. These contradictory phenomena have begun to be identified in a variety of Canadian design situations, among them, competitions.<sup>7</sup> Environmental certifications such as LEED give the perception of responsible design and are important symbols for

2. W. McDonough and M. Braungart, *Cradle to Cradle: Remaking the Way We Make Things* (New York, 2002).

3. S. Van der Ryn and S. Cowan, *Ecological Design*, tenth anniversary edition (Washington, 2007), and D.W. Orr, *The Nature of Design: Ecology, Culture, and Human Intention* (New York, 2002).

4. T. Fry, *Design Futuring: Sustainability, Ethics and New Practice* (New York, 2009).

5. *Ibid.*, 43.

6. C. Cucuzzella, "When the Narrative of Environmental Certifications Replaces the Debate on Quality," *Faire des histoires? Du récit d'urbanisme à l'urbanisme fonctionnel: Faire la ville à l'heure de la société du spectacle*, ed. L. Matthey, C. Mager, D. Gaillard, and H. Gallezot (Geneva, 2013): 43–47.

7. See C. Cucuzzella and J.-P. Chupin, "The 'Global Warming' of the Judgment Process in Competitions for Public Buildings in Canada," *The International Journal of Sustainability Policy and Practice* 8, 2 (2013): 53–67; R.J. Cole, "Beyond LEED: Embracing Holism, Engaging Complexity, & Accepting Uncertainty," paper presented at the Beyond LEED: Regenerative Design Symposium, The University of Texas at Austin School of Architecture, 2012; <http://soa.utexas.edu/beyondleed/PDFs/z.Cole.pdf>; J. H. Scofield, "Do LEED-Certified Buildings Save Energy?, Not Really..." *Energy and Buildings* 41 (2009): 1386–90.

8. Scofield, "Do LEED-Certified Buildings;" G.R. Newsham, S. Mancini, and B.J. Brit, "Do LEED-Certified Buildings Save Energy? Yes, But..." *Energy and Buildings* 41, 8 (2009): 897–905; S. Guy and G. Farmer, "Contested Constructions: The Competing Logics of Green Buildings and Ethics," *Ethics and the Built Environment* (London, 2000): 73–87.

9. P. Bourdieu, *The Field of Cultural Production: Essays on Art and Literature* (New York, 1993).

10. C. Owen and K. Dovey, "Fields of Sustainable Architecture," *The Journal of Architecture* 13, 1 (2008): 9–21, p. 12.

11. J.H. Spangenberg, A. Fudad-Luke, and K. Blincoe, "Design for Sustainability (DFS): The Interface of Sustainable Production and Consumption," *Journal of Cleaner Production* 18 (2010): 1485–93; T. Bhamra and V. Lofthouse, *Design for Sustainability: A Practical Approach* (Aldershot, 2007); H. Udo de Haes and M. Van Rooijen, "Life Cycle Approaches: A Road from Analysis to Practice," edited by the United Nations En-

vironment Programme Division of Technology Industry and Economics (DTIE) Production and Consumption Unit: UNEP/SETAC Life Cycle Initiative (2005).

12. J.R. Ehrenfeld, *Sustainability by Design: A Subversive Strategy for Transforming Our Consumer Culture* (New Haven and London, 2009); Van Der Ryn & Cowan, *Ecological Design*; Orr, *Nature of Design*.

### 1. The Question of Visual Culture in the Context of Sustainability

13. W. McDonough and M. Braungart, *The Upcycle: Beyond Sustainability—Designing for Abundance* (New York, 2013); McDonough & Braungart, *Cradle to Cradle*; A. Tukker, "Risk Analysis, Life Cycle Assessment—The Common Challenge of Dealing with the Precautionary Frame (Based on the Toxicity Controversy in Sweden and the Netherlands)," *Risk Analysis* 22, 5 (2002): 821–32.

"Sustainable design" gathers a wide and heterogeneous series of principles and concepts from a variety of disciplines. It cannot be recognized as a coherent "field" in the sense coined by sociologist Pierre Bourdieu, that is, a social space that structures strategic action for control over resources that are construed as forms of capital, where capital encompasses economic, social, cultural, and symbolic dimensions.<sup>9</sup> Thus it is not clear yet what is really implied by terms such as "sustainable design," "sustainability by design," "design by sustainability," "sustaining design," and so on. According to Ceridwen Owen and Kim Dovey, "Sustainability is not a field with institutional boundaries like architecture; rather it is a field of discourse and practice that straddles multiple professions and disciplines including architecture, engineering, urban planning, ecology and climatology."<sup>10</sup> While this reflects the complexity of sustainable design, it also hinders our ability to comprehend it as a definable field of research.

Furthermore, when surveying the multifaceted history of sustainable design, questions of architectural integrity are rarely understood as crucial. Instead, the main research areas have been resource efficiency;<sup>11</sup> transdisciplinary design;<sup>12</sup> industrial ecology;<sup>13</sup> biological-inspired design;<sup>14</sup> design for economic degrowth;<sup>15</sup> socio-economic focus;<sup>16</sup> and place-based

14. E. Ternaux, *Industry of Nature: Another Approach to Ecology* (Amsterdam, 2012); M. Macnab, *Design by Nature: Using Universal Forms and Principles in Design* (Berkeley, 2012); S.R. Kellert, J.H. Heerwagen, and M. Mador, eds., *Biophilic Design: The Theory, Science, and Practice of Bringing Buildings to Life* (Hoboken, NJ, 2008); J.M. Benyus, *Biomimicry: Innovation Inspired by Nature* (New York, 1997).

15. T. Jackson, *Prosperity without Growth: Economics for a Finite Planet* (London, 2009); F. Flipo, "Conceptual Roots of Degrowth," paper presented at the Economic Degrowth for Ecological Sustainability and Social Equity Conference, Paris, 2008; J.H. Spangenberg, "Measures for Collective Reduction of Material Acquisition Capacities of Affluent Countries," paper presented at the Economic Degrowth for Ecological Sustainability and Social Equity Conference, Paris, 2008; S. Latouche, *Le pari de la décroissance* (Paris, 2006).

16. J. Parent, C. Cucuzzella, and J.-P. Revêret, "Revisiting the role

17. J. Parent, C. Cucuzzella, and J.-P. Revêret, "Revisiting the role

18. J. Parent, C. Cucuzzella, and J.-P. Revêret, "Revisiting the role

19. J. Parent, C. Cucuzzella, and J.-P. Revêret, "Revisiting the role

20. J. Parent, C. Cucuzzella, and J.-P. Revêret, "Revisiting the role

of LCA and SLCA in the Transition Towards Sustainable Production and Consumption," *The International Journal of Life Cycle Assessment* 18 (2012): 1642–52; J. Parent, C. Cucuzzella, and J.-P. Revéret, "Impact Assessment in SLCA: Sorting the SLCA Methods According to Their Outcomes," *International Journal of Life Cycle Assessment* 15 (2010): 164–71; B. P. Weidema, "The Integration of Economic and Social Aspects in Life Cycle Impact Assessment," *Journal of Life Cycle Assessment* 11, 1 (2007): 89–96; F. Vanclay, "Social Impact Assessment," prepared for *Thematic Review* vol. 2: *Environmental and Social Assessment for Large Dams*, World Commission on Dams, 2000.

17. K. Yeang, *Ecodesign: A Manual for Ecological Design* (London, 2006); S. Guy and G. Farmer, "Reinterpreting Sustainable Architecture: The Place of Technology," *Journal of Architectural Education* 54, 3 (2001): 140–48; K. Frampton, "Towards a Critical Regionalism: Six Points for an Architecture of Resistance," *Postmodern Culture*, ed. Hal Foster (London, 1985): 16–30; F. Stevenson and J. Ball, "Sustainability and Materiality: The Bioregional and Cultural Challenges to Evaluation," *Local Environment* 3, 2 (1998): 191–209.

18. L. Hosey, *The Shape of Green: Aesthetics, Ecology, and Design* (Washington, 2012); S. Lee, ed., *Aesthetics of Sustainable Architecture* (Rotterdam, 2011); G. Baird, *The Architectural Expression of Environmental Control Systems* (London & New York, 2001).

19. J. Steele, *Architecture écolo-gique: une histoire critique* (Arles, 2005).

20. J. Farmer, *Green Shift: Towards a Green Sensibility in Architecture* (Oxford, 1996).

21. J. Wines, *Green Architecture* (Köln & New York, 2000).

22. G. Farmer and S. Guy, "Hybrid Environments: The Spaces of Sustainable Design," *Sustainable Architectures: Cultures and Natures in Europe and North America*, ed. S. Guy and S. A. Moore (New York, 2005).

23. H. Liddell, *Eco-Minimalism: The Antidote to Eco-Bling*, 2nd ed. (London, 2013); Cucuzzella, "When the Narrative;" S. A. Moore and N. Engstrom, "The Social Construction of 'Green Building' Codes: Competing Models by Industry, Government and NGOs," *Sustainable Architectures: Cultures and Natures in Europe and North America*, ed. S. Guy and S. A. Moore (London, 2005): 51–70.

24. J. P. Chupin, C. Cucuzzella, and B. Helal, eds., *Architecture Competitions and the Production of Culture, Quality and Knowledge: An International Inquiry* (Montreal, 2015); E. R. Alexander, L. P. Witzling, and D. J. Casper,

design.<sup>17</sup> There are some rare cases of research dedicated to the analysis of the form or expression of sustainable design<sup>18</sup> and a very few that address the historical analysis of sustainable design.<sup>19</sup> Of the latter, John Farmer's seminal book *Green Shift* presents the history of modern architecture from a "green" standpoint.<sup>20</sup> It highlights the shift in the expression of green architecture when compared to other buildings of the past and present. In *Green Architecture*, James Wines<sup>21</sup> analyzes a series of projects to better understand how the increasingly earth-centric awareness of architects influenced the design of buildings in the 1990s, while relating these projects to ancient practices, as far back as the Bronze and Iron Ages. Both these influential texts underline the shifting visual expression of architecture.

### *Practices of Sustainable Architectural Design*

Sustainable design, and specifically sustainable architecture, comprises concerns that run along a wide spectrum of disciplines, from those in the arts to those in the sciences. Since it has numerous, even contradictory definitions, and since I am limiting my discussion to architecture, I define sustainable design as the design of vibrant spaces and cultural places that makes environmental health an equally important condition.

The danger of addressing the many fields involved in sustainable design, if it is done in a reductive manner, is that there is a failure to integrate the separate considerations that make up a single project.<sup>22</sup> In other words, energy efficiency strategies may be implemented by simply adding expensive technical and mechanical devices. The alternative is to integrate these interventions into the many architectural components of a building, such as envelope, orientation, fenestration, composition of form, space, and so on. These two approaches will result in very different projects with very different visual expressions.

My hypothesis is that the application of the principles of eco-efficiency as a systematic strategy for sustainable design may result in nothing more than what I refer to as a series of new "demonstrative devices" or "devices of communication" that influence the visual language of contemporary projects. These are design components that convey distinct meanings to the lay public. For example, it is commonly observed that some uses of solar panels have more to do with communicating environmental sustainability than actually reducing environmental impacts in any significant manner.<sup>23</sup> The complex tensions within the design disciplines between the qualities of the design components and the meanings they convey represent a new social and cultural problematic and are the focus of this paper.

### 2. Competitions as Comparative Devices for Design Research

Competitions can be viewed as epistemological devices that allow us to study interdisciplinary issues related to contemporary design projects. By definition, competitions display the best of what designers can produce, and their proposals are filtered through a comparative apparatus regulated by a collective and qualitative judgment process.<sup>24</sup> This provides a means for the observation and identification of design reorientations as representing the best of what architects offer.

Historically, competitions have acted as both controversial and experimental events in the design disciplines.<sup>25</sup> Recent work in competition studies shows that from the construction of the brief to the realization of the winning project, competitions are true communication platforms<sup>26</sup> in which communicative exchanges and qualitative judgments reflect the value systems of the various stakeholders regarding the definition of design quality as a whole.<sup>27</sup> An understanding of how designers design for sustainability through competition projects helps to unveil a series of tensions between the cultural and technical dimensions of their work.

#### *Public Space Design Competitions in Canada (2003–2014)*

Competitions for public spaces in Canada only became an organized phenomenon after the Second World War. They have been open to regional, national, and international designers and have been conducted in a variety of forms: ideas, projects, invited, open, anonymous, etc. By definition, all these competitions comprise: a client; a brief provided to the competitors; a list of criteria for judging; a series of competitor proposals; the competitors (designers); a jury that selects the winning proposal; and the winning project. The Canadian Competitions Catalogue (ccc),<sup>28</sup> which archives Canadian design competitions that date as far back as 1945, lists competitions for parks, piazzas, public installations, sports complexes, community centres, libraries, cultural centres, educational buildings, public landscapes, public administrative buildings, social housing projects, hospitals, religious buildings or spaces, and other types of public space designs.

This paper focuses on the competitions that were launched since 2003, the year LEED was introduced in Canada by the Canada Green Building Council. Its establishment represented an important environmental milestone for Canada, since the LEED certification provides a green building rating guideline that is communicable through its branding. Although several other environmental certifications exist in Canada to identify the “greenness” of processes, materials, and projects,<sup>29</sup> LEED was the only one required in the competitions studied.

Since 2003, there have been 136 public space design competitions held across Canada. Of these, 18 were launched in British Columbia, 13 in Alberta, 1 in Saskatchewan, 6 in Manitoba, 34 in Ontario, 61 in Quebec, 1 in New Brunswick, 2 in Nova Scotia, and none in Prince Edward Island, Newfoundland, Yukon, Northwest Territories, or Nunavut. From the 136 competitions, I selected the ones that satisfied two conditions: the call specified a requirement related to sustainability (which could be as little as a general phrase or as complex as a sustainability requirement spread throughout the brief); and the competition documents are available in the ccc database. Of the 51 competitions that satisfied both conditions, 22 were in the province of Quebec. | table 1 |

By the end of the first decade of this century, environmental requirements in public space design competitions became very specific in terms of metrics, particularly in Quebec competitions. In the first part of this study, I analyze the competition briefs to understand how the projects are generally presented to competitors. In other words, I ask: what are the major concerns and interests, the main requirements, the design questions, for the project? In the second part, I examine the finalist project proposals, including the presentation

“Planning and Urban Design Competitions: Organization, Implementation and Impacts,” *Journal of Architectural and Planning Research* 4 (1987): 31–46; T. Banerjee and A. Loukaitou-Sideris, “Competition as a Design Method: An Inquiry,” *Journal of Architectural and Planning Research* 7, 2 (Summer 1990), 114–31; K. Kreiner, “Designing Architectural Competitions: Balancing Multiple Matters of Concern,” *Conditions* 7 (2010); M. Ronn, R. Kazemian, and J. E. Andersson, eds., *The Architectural Competition: Research Inquiries and Experiences* (Stockholm, 2010).

25. A. Yaneva, *Mapping Contraversies in Architecture* (Burlington, VT, & Aldershot, UK, 2012); H. Lipstadt, ed., *The Experimental Tradition: Essays on Competitions in Architecture* (New York, 1989).

26. J. Van Wezemael, J. Silberberger, and S. Paisiou, “Assessing ‘Quality’: The Unfolding of the ‘Good’—Collective Decision Making in Juries of Urban Design Competitions,” *Scandinavian Journal of Management* 27, 1 (March 2011): 167–72; J.-P. Chupin, “Documenting Competitions, Contributing to Research, Archiving Events,” *Architecture et archives numériques*, ed. D. Peyceré and F. Wierre (Geneva, 2009): 523–44.

27. Cucuzzella, “When the Narrative.”

28. Publicly available at ccc.umontreal.ca.

29. See the Environmental Certification Programs page on the Government of Canada website at for a list and categorization of certifications in Canada ([www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/trousse-toolkit/page-6-eng.html](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/trousse-toolkit/page-6-eng.html)).



**Table 1.** List of competitions in Quebec since 2003. The competitions that are highlighted in grey are those I studied since they satisfy the two conditions: (1) they have a minimum environmental requirement; and (2) the competition documents are accessible. These comprise the research corpus for this paper. Source: www.ccc.umontreal.ca.

Name of Competition	City	Year	Env. Req.	Data?
Espace pour la vie—Volet A: la Métamorphose de l’Insectarium	Montreal	2014	yes	yes
Espace pour la vie—Volet B: le Biodôme renouvelé	Montreal	2014	yes	yes
Espace pour la vie—Volet C: le Pavillon de verre au Jardin botanique	Montreal	2014	yes	yes
Concours pour le réaménagement et l’agrandissement de la bibliothèque de Pierrefonds	Montreal	2013	yes	yes
Concours de design de la plage de l’Est	Montreal	2013	yes	no brief
Concours Nordicité (Volet Professionnel)	Montreal	2013	n/a	none
Concours Nordicité (Volet Étudiant)	Montreal	2013	n/a	none
Concours pour le Pavillon 5 du Musée des beaux-arts de Montréal	Montreal	2013	n/a	none
Pôle muséal du quartier Montcalm	Quebec City	2013	n/a	none
Bibliothèque municipale Paul-Mercier de Blainville	Blainville	2013	n/a	none
Concours d’idées en design urbain pour le pôle du Quartier latin: Volet Architecture	Montreal	2012	n/a	none
Concours d’idées en design urbain pour le pôle du Quartier latin: Volet Aménagement	Montreal	2012	n/a	none
Relève Design BALNEA-SIDIM 2012	Bromont	2012	n/a	none
Siege social de l’Ordre des architectes du Québec	Montreal	2012	n/a	none
Agrandissement de la bibliothèque Saul-Bellow	Montreal	2011	yes	yes
Maison de la littérature de l’Institut canadien de Québec	Quebec City	2011	yes	yes
Complexe de soccer au CESM	Montreal	2011	yes	yes
Concours de design urbain Namur Jean-Talon Ouest	Montreal	2011	yes	yes
Centre de diffusion culturelle/Édifice Guy-Gagnon	Montreal	2011	yes	no brief
Promenade Smith	Montreal	2011	yes	no brief
Salle de spectacle multifonctionnelle à Mont-Laurier	Mont-Laurier	2011	yes	yes
Concours d’architecture de paysage pour l’aménagement du parc de Place de l’Acadie	Montreal	2011	yes	no brief
Concours d’art et de design urbain du quartier Saint-Roch	Quebec City	2011	n/a	none
Conception et réalisation d’une œuvre d’art public (Habitations Jeanne-Mance)	Montreal	2011	n/a	none
Créer l’hiver au Quartier des spectacles/Abord du métro Saint-Laurent	Montreal	2011	n/a	none
Jardins de Métis 2012	Grands Métis	2011	n/a	none
Créer l’hiver au Quartier des spectacles/Place Émilie-Gamelin	Montreal	2011	n/a	none
Créer l’hiver au Quartier des spectacles/Place des Festivals	Montreal	2011	n/a	none

panels, the models (when available), and the descriptive texts. The presentation panels are the posters that present the initial sketches, ideas, site, cuts, plans, and any other details intended to help understand the proposed projects. The descriptive texts are the accompanying project descriptions that help clarify the underlying inspirations and give further details.

#### *Identifying the Shift in Discourse in Architectural Competition Briefs*

Competition briefs are descriptions of the desired results of a design project and therefore direct the way in which competitors design and communicate their proposals. Table 2 shows the occurrences of some keywords related to sustainability and environmentalism in Quebec competition briefs since

Concours international d'idées pour le parcours d'entrée de la Ville de Montréal	Montreal	2011	n/a	none
Jardins de Métis 2011	Grands Métis	2010	n/a	none
Griffintown interrupted	Montreal	2010	n/a	none
Complexe sportif Saint-Laurent	Montreal	2010	yes	yes
Centre culturel Notre-Dame-de-Grâce	Montreal	2010	yes	yes
Nouvelle bibliothèque de Saint-Eustache	Saint-Eustache	2010	n/a	none
Amphithéâtre de Trois-Rivières sur Saint-Laurent	Trois-Rivières	2010	n/a	none
Jardins de Métis 2010	Grands Métis	2009	no	yes
Nouvelle bibliothèque de Saint-Laurent	Montreal	2009	yes	yes
Bibliothèque Marc-Favreau	Montreal	2009	yes	none
Musée national des beaux-arts du Québec	Quebec City	2009	yes	yes
Aménagement des abords de la station de métro Champ-de-Mars (professionnel)	Montreal	2009	yes	no brief
Aménagement des abords de la station de métro Champ-de-Mars (étudiant)	Montreal	2009	yes	no brief
Design des éléments de mobilier urbain amovibles à l'usage des festivals	Montreal	2009	n/a	none
Concours de design d'abris	Montreal	2009	n/a	none
Bibliothèque de Saint-Hubert	Saint-Hubert	2008	yes	yes
Mise en lumière de la façade du Gesù	Montreal	2008	no	yes
Paysages suspendus	Quebec City	2008	yes	yes
Planétarium de Montréal	Montreal	2008	yes	yes
Rethinking and Redefining Social Housing in Montreal's City Centre	Montreal	2007	yes	yes
Agrandissement de la Bibliothèque Montarville-Boucher de la Bruère	Boucherville	2007	yes	yes
Rethinking and Redefining Social Housing in the City Centre, student competition	Montreal	2006	yes	yes
Îlot des Palais	Quebec City	2006	no	yes
Agrandissement de la bibliothèque Félix-Leclerc	Val-Bélair	2006	yes	yes
Jardins Éphémères du 400 <sup>e</sup>	Quebec City	2006	no	yes
Salle de spectacle de Dolbeau-Mistassini	Dolbeau-Mistassini	2005	yes	yes
L'Abbaye cistercienne (ancienne abbaye d'Oka)	Oka	2004	n/a	none
Perspective Littoral. Secteur des chutes Montmorency	Quebec City	2004	no	yes
Perspective Littoral. Secteur des chutes Montmorency. Concours étudiant	Quebec City	2004	no	yes
Place Eugène-Lapierre	Montreal	2003	no	yes
Quartier Concordia	Montreal	2003	n/a	none
Bibliothèque de Charlesbourg	Charlesbourg	2003	yes	yes
Théâtre des Deux Rives	Saint-Jean-sur-Richelieu	2003	no	yes

2003. | table 2 | I have included the results of a competition launched in 1992, the year of the Rio Earth Summit, when the UN's Agenda 21<sup>30</sup> was instituted, in order to establish a baseline, since it represents the beginning of international discourses related to sustainable development.

We can see that the use of words related to these terms has increased steadily since 2003. The use of metrics and specifically, of LEED has also become progressively more important in competition briefs in the same years. These results point to the growing adoption of technological approaches to sustainability, evident through the rising use of terms such as energy reduction, material efficiency, LEED credits, smart thermal feedback systems, photovoltaic solutions, geo-thermal, grey-water recycling, recycled materials, green roofs.

30. Agenda 21, a plan of action toward sustainability, was devised at the United Nations Conference on Environment and Development (UNCED) in 1992. This was a critical conference for placing environmental concerns at the top of national and international agendas (<http://www.un.org/esa/sustdev/documents/agenda21/index.htm>).

Figure 1. Distribution in percentage of textual discourse in brief for each of the categories of: technological/environmental, social, cultural, and economic for competitions in Quebec since 2003.

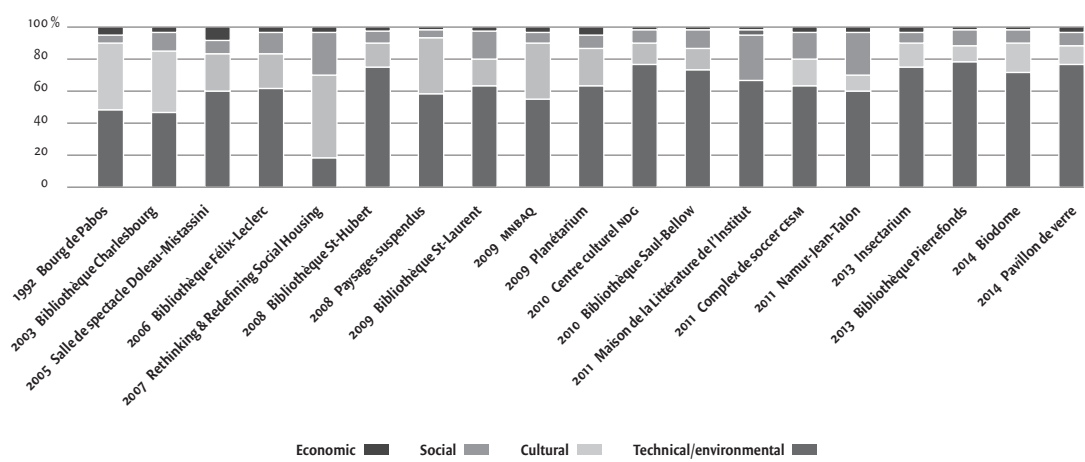


Table 2. Occurrences of words related to sustainability for competitions in Quebec since 2003.

	Environment	LEED	Durability	Biophilic	Trans-disciplinary	Inter-disciplinary	Efficiency	Energy	Integrated Design Process	Total
1992 Bourg de Pabos	7	0	0	0	0	0	0	0	0	7
2003 Bibliothèque Charlesbourg	17	0	5	0	0	0	0	1	0	23
2005 Salle spectacle Doleau-Mistassini	3	0	2	0	0	0	3	0	0	8
2006 Bibliothèque Félix-Leclerc	20	0	4	0	0	1	5	1	0	31
2007 Bibliothèque Montarville-Boucher de la Bruère	27	0	0	0	0	0	4	0	0	31
2007 Rethinking and Redefining Social Housing in Montreal's City Centre	4	0	1	0	0	0	0	2	0	7
2008 Paysages suspendus	3	0	2	0	0	0	3	0	0	8
2008 Bibliothèque St-Hubert	15	1	13	0	0	0	4	6	0	39
2009 Bibliothèque St-Laurent	25	14	23	0	0	0	5	5	5	77
2009 MNBAQ	15	10	12	0	0	0	3	2	0	42
2009 Planétarium	31	14	9	0	0	0	7	10	0	71
2010 Centre culturel NDG	20	16	15	0	1	1	10	17	0	80
2010 Bibliothèque Saul-Bellow	18	21	14	0	0	0	9	13	5	80
2011 Maison de la Littérature de l'Institut Canadien de Québec	1	0	2	0	0	0	3	1	0	7
2011 Complexe de soccer CESM	51	26	31	0	0	1	14	14	5	142
2011 Mont-Laurier	6	5	4	0	0	0	5	10	0	30
2011 Namur-Jean-Talon	14	1	3	0	0	0	2	0	0	20
2013 Insectarium	119	35	40	29	2	1	72	60	6	364
2013 Bibliothèque Pierrefonds	47	30	39	0	0	0	15	17	6	154
2014 Pavillon de verre	64	42	39	13	2	1	32	45	2	240
2014 Biodome	50	1	25	11	0	0	11	14	0	112



I also conducted a discourse analysis of the competition briefs in order to categorize the requirements into: cultural, social, technical/environmental, and economic.<sup>31</sup> Figure 1 presents the results of this discourse analysis for Quebec competitions. | fig. 1 | It shows that the discourse in the briefs has taken on a predominantly technical lexicon since 2003, and that the concerns related to social and cultural aspects are being compromised as a result. This is somewhat paradoxical since these competitions were all intended for important cultural projects. I have included the 1992 competition of Bourgeois de Pabos as a baseline comparative.

Another observation regarding the briefs is that toward the end of the decade, as LEED became more widely known, it became the main requirement for sustainable architectural design in competitions. At times, the weight given to LEED was greater than other, more qualitative criteria. My research on finalist projects seeks to shed light on how this shift impacted both the competitors' designs and the juries' decisions.

#### *Categorizing the Visual Language of the Finalist Architecture Proposals*

In order to identify categories of visual language in the project proposals, I analyzed projects using three kinds of indicators—text, image, and models—and I compared them with the other projects in the same competition and with the entire set of finalist projects across all competitions. Competitors' creative responses were then charted at the intersection of two systems of polarization: the textual narratives and the visual semantics of the proposals.

The textual narrative represents the way in which architects and designers articulate the story of their project by making explicit the underlying intentions, anticipated vision, and/or variety of responses needed to tackle the often-complex programmatic and formal requirements of public cultural projects. The competition texts communicate the main ideas underlying the project. For the textual narrative analysis, I sought to position the discourse somewhere along the spectrum between projects heavily based on an engineering technical rationality and those rooted in a cultural and lyrical expression.

The visual semantics, or visual expression, of the architectural project can be seen as the outcome of the choices made by the architects and designers throughout the process. The elements that relate to sustainability here are: expressions of technology as in photovoltaic solar panels, expressions of nature as in vertical walls of vegetation, and expressions of the vernacular. These choices inevitably result in different visual experiences and interpretations. Here I sought to understand the extent to which the projects' materials, techniques, formal strategies, and/or compositional strategies communicate the intents of sustainability to the general public. On one side of this spectrum, I charted those projects that adopted non-visible (intrinsic) sustainable strategies, and on the other those that adopted very visible (instrumental) sustainable strategies. Examples of non-visible strategies include orientation of building, position of fenestration, quality of interior space to enhance air-flow, natural ventilation, solar shading, and shelter planting. These are solutions to issues of environmental sustainability that are not blatantly visible to the lay public, but rather inherent in the design. Examples of visible sustainable strategies include green roofs, vegetable walls, solar panels, thermal

31. Guy and Farmer ("Contested Constructions") have elaborated what they term as six different green "logics," each based on a different value system embedded in sustainable architectural design. These are: ecological, smart, aesthetic, symbolic, comfort, and community, where ecological and smart are classified as the technical approaches, the aesthetic and symbolic as cultural, and the comfort and community as social. I have adopted this to help guide the discourse analysis for the briefs.

solar collectors, double roofs, small wind turbines, and even the overuse of the color green on panels. Here, the design elements and strategies are clearly visible to the public and connote green design: they are forms of visual communication. Howard Liddell terms such elements *eco-bling*—solutions that look green but provide very few or no environmental benefits.<sup>32</sup>

These two axes helped map out the ways teams not only presented their projects visually in order to highlight the most redeeming and promising qualities, but also emphasized these through the descriptive texts. The various projects studied were placed on this grid to help understand if a design shift is occurring. For the sake of brevity, I will present the results of the finalist projects of only the 2003, 2008, and 2013 competitions, all for public buildings—twelve finalist projects in total, two for libraries and one for a planetarium. The temporal distribution of these competitions is broad enough to help us detect an emerging aesthetic. All three competitions were launched in and destined for the province of Quebec.

#### *Charlesbourg Library Competition (2003)*

The Charlesbourg Library Competition, launched in 2003, was one of the first competitions in Quebec to include environmental requirements. It did not require a green building rating certification, but competitors were advised that, “The proposals should show a concern for sustainable architecture, as much in the choice of materials as in the mechanical systems”<sup>33</sup>—i.e., non-measurable but qualifiable sustainable elements. This was the same year that the Canada Green Building Council introduced LEED. Eric Pelletier, a partner in the winning firm Croft-Pelletier, described his team’s response to the competition brief in this way:

The green roof and the adjacent landscaping recall the agricultural past of Charlesbourg Village and the common pasture lands that once occupied the centre of the square.... The library’s green-roof—one of the largest in Canada—is designed to be an accessible public park for reading, relaxing and picnicking, encouraging appropriation by the public and giving the library a multi-functional character.<sup>34</sup>

In other words, the winner described the green roof not as a solution to the problem of sustainability, but rather as an allegorical gesture to the pastures of Charlesbourg and a social revitalization space for the community, and therefore a social solution. Of the five finalists, only one team—and not the winning one—included considerations of environmental sustainability in their project, by referring to the incoming LEED rating system:

The ecological approach is based on the pertinent use of low-cost and efficient technologies. This applies as much to the definition of the building as to the treatment of the site. It takes into account characteristics of the four seasons, and in particular that of summer and winter. The project responds to LEED (Leadership in Energy & Environmental Design) exigencies, a life cycle evaluation protocol for buildings.<sup>35</sup>

Even if the members of this team were early proponents of LEED, this extract shows that they were not very familiar with the certification.<sup>36</sup> However, it does indicate that environmental certifications were already starting to be perceived as panaceas, albeit not well understood. And it is an example of the typical response to designing for a site with extreme climate, which is inescapable for any architectural project in Quebec. It is a generalizing statement that

32. Liddell, *Eco-Minimalism*.

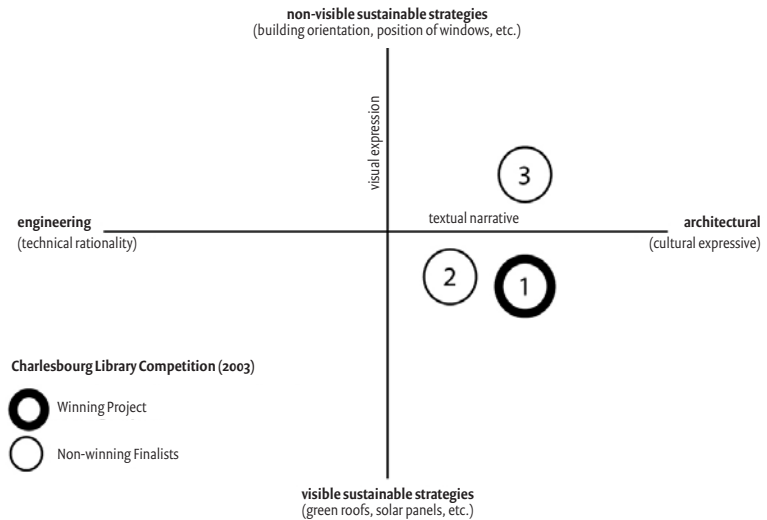
33. Ville de Québec, “Concours d’architecture Bibliothèque de Charlesbourg Programme” (Québec, 2003), 29.

34. Descriptive text for this competition was found on Sab-Mag, “Charlesbourg Library,” <http://www.sabmagazine.com/blog/2010/06/14/charlesbourg-library/>.

35. The descriptive text for the runner-up of the Charlesbourg Library competition can be found on the site of the Canadian Competitions Catalogue.

36. LEED did not have any life-cycle evaluation protocol at the time and was simply a green building-rating system. Sustainability is defined as the group of concerns that cut across the environmental, the social, and the economic, whereas LEED only represents concerns for the environment. Including only LEED specifications in a sustainable development section in a competition brief is therefore clearly inadequate to guide the competitors in terms of how to address sustainable development. This is very different since the life-cycle evaluation protocol is diagnostic, while LEED is prescriptive.

Figure 2. Charlesbourg Library Competition (2003). Analysis of finalist projects.



says little about the team’s technical solutions and their approach to cultural expression. There was also no evidence on this team’s visual panels of an attempt to innovate in terms of environmental sustainability.

None of the other finalists addressed environmental sustainability in their projects, either in their descriptive text or in their visual panels. Figure 2 presents the analysis of the competitor proposals. | fig. 2 | The results are situated at the intersection of their discursive texts and their visual presentations.

It is important to highlight that when the Croft-Pelletier firm spilt up and Marie-Chantal Croft, one of the members of the winning team, joined coarchitecture, a firm very knowledgeable in building certifications, the retrospective narrative of this same project changed dramatically. In 2006, three years after it was built, this firm’s website described the same green roof as,

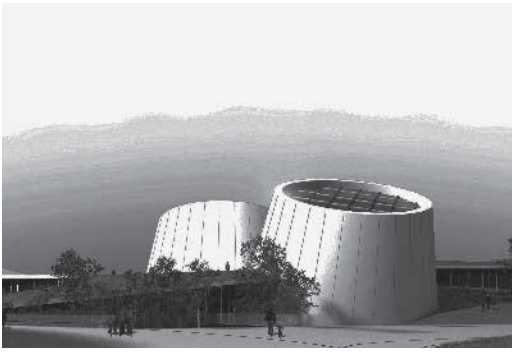
The vegetable roof, the largest accessible in North America, has many environmental advantages: it increases the retention of rainwater, thus reducing the need for treatment of the water by the municipality, it reduces the cooling load required, it reduces the heat island effect in summer and protects the roof against the effects of sunlight.<sup>37</sup>

Overall, there was little evidence of a shifting visual language of sustainability in the early 2000s (before LEED certification was introduced). As Figure 2 shows, the visual and textual submissions were for the most part not founded in either technical language or visible environmental elements.

#### *New Montreal Rio Tinto Planetarium Competition (2008)*

Comparing the results of competitions leading up to 2003 with those organized between 2006 and 2010, we see a marked difference. The New Montreal Rio Tinto Planetarium Competition was launched in 2008 in Montreal. It had two important characteristics: it included an environmental certification requirement of LEED Platinum, the highest level possible; and it was an international competition. Its international nature implied very high visibility, which made it extremely important politically for the city of Montreal as a communicative

37. This descriptive text can be found on coarchitecture’s website, [www.coarchitecture.com/fr/portfolio/culturel-/bibliotheque-de-charlesbourg](http://www.coarchitecture.com/fr/portfolio/culturel-/bibliotheque-de-charlesbourg).



**Figure 3. Winning project of the New Montreal Rio Tinto Planetarium Competition (2008).** Left **Original rendering from competition panel.** (© Cardin-Ramírez) Right **Built project.** (Photo: author)

device.<sup>38</sup> The general requirement for sustainability was that, “The Planetarium through its vocation must reflect an environmental and sustainable development sensibility.... In response, management has set the most demanding, LEED Platinum certification. The section no. 4 determines the criteria to prioritize.”<sup>39</sup>

The section devoted to the sustainable development criteria was a comprehensive summary of the LEED categories. This represents a very myopic vision on the part of the competition organizers, since sustainability is much more complex than simply adopting a green building certification, and it was problematic in terms of seeking out the best and most innovative architectural project. All finalists were asked to devote one entire competition panel (of the three required for their submission) to the description of their approach for addressing sustainability—or rather, their approach for obtaining a LEED Platinum certification.

The requirements stated in the competition brief had obvious repercussions in terms of the solutions proposed by the finalists. The finalist teams all devoted a major part of their project description to environmental sustainability. For example, the winning team dedicated almost 50 % of its explanatory text to environmental solutions, describing the project more from an engineering perspective than from an architect’s desire for expression of site and place. Figure 3 shows the competition proposal and the built winning project. | fig. 3 |

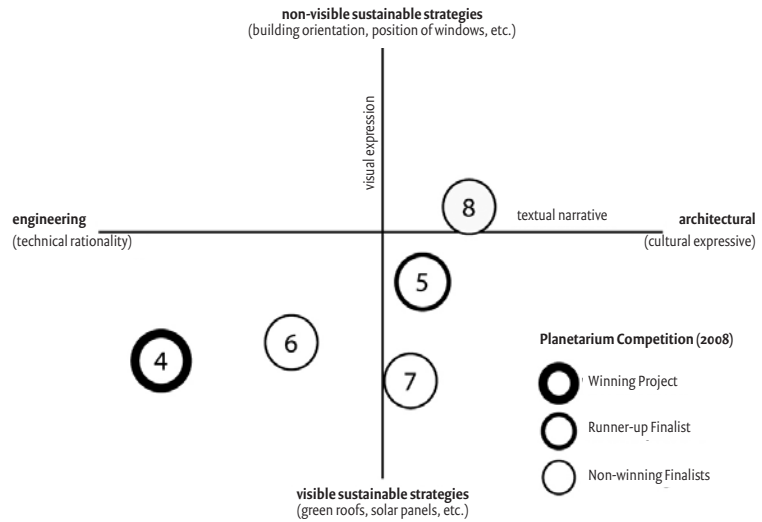
What is interesting about this competition is that the jury, after selecting the winner, highly recommended that the winning team fundamentally rework the space (to make it more fluid), the integration to site, the envelope, and the symbolism. One wonders what is left of the project! Did the jury appreciate any part of the winning project’s architectural qualities? Almost the entire structure was underground, and the only visible elements in the original submission were the two “telescopic lenses”—a first-degree analogy since a telescope is what immediately comes to mind when thinking of a planetarium—projecting up from the ground. The judges deemed it was an underdeveloped form for such a cultural venue. Furthermore, these lenses were completely covered in aluminum, an unsurprising choice, given that the main sponsor was Rio-Tinto Alcan. In spite of all this, the project won the jury’s confidence, no doubt because the LEED certification was clearly demonstrated as achievable.

The jury praised the runner-up project’s spectacular symbolic and spatial aesthetic, which is in direct contrast to how they judged the winning pro-

38. Cucuzzella and Chupin, “Global Warming.”

39. Ville de Montréal, “Concours d’architecture, Planétarium de Montréal: Programme (Étape 2),” *Muséum Nature* (Montreal, 2009), 29.

**Figure 4. Montreal Rio Tinto Planetarium Competition (2008). Analysis of finalist projects.**



ject. The runner-up, the jury reported, “underlines the exceptional spatial and sculptural qualities and the spectacular response to the site.”<sup>40</sup> It was not the most innovative architectural project that won, but the one that was perceived most apt to achieve the environmental certification—surprising for such a cultural project but not unusual for an international competition in that period.

This situation was repeated for most competitions organized in Quebec between 2006 and 2010: projects won, for the most part, because of their technical green approaches and in spite of their lack of innovative technologies and symbolic or sculptural qualities. They were considered strong projects because they could be proven to be LEED certifiable. Figure 4 presents the results of the analysis (both textual and visual) for each of the finalist projects of the Montreal Planetarium competition. | fig. 4 |

#### *Pierrefonds Library Competition (2013)*

The Pierrefonds Library Competition was launched in 2013. The main requirements were: family-oriented space, new information technologies, quality of design, and sustainable development. The press release launching this competition announced that, “the values of sustainable development will be integrated into the project thanks to the criteria of design aiming for the LEED Gold standard.”<sup>41</sup> Sustainable development was once again reduced to a LEED certification. The teams generally responded to this call by adopting approaches similar to those seen in the 2008 Montreal Planetarium. The main difference is that the winning project adopted not just a technical LEED discourse, but one that embedded the technical within the overall formal and structural choices—in other words, integrated rather than juxtaposed solutions. This represents a major difference in terms of project perspective.

Figure 6 illustrates the results of the analysis of the four finalists for the Pierrefonds Library Extension competition. | fig. 6 | It is important to highlight that the calibre of the jury members for the Pierrefonds competition in

40. Ville de Montréal, “Le Planétarium/Concours d’architecture: Rapport du Jury: Étape 2,” *Muséum Nature* (Montreal, 2009), 5.

41. Ville de Montréal, “Agrandissement et Réaménagement Bibliothèque de Pierrefonds: Règlement du concours d’architecture SP-CSLDS-13-002,” 2013, p. 2. Translation by the author.



Figure 5. Pierrefonds Library Competition (2013). Winning project (© Chevalier-Morales).

terms of expertise in cultural production was unprecedented: the founder of the Canadian Centre for Architecture (CCA), Phyllis Lambert, was a member, along with Jacques Plante, architect and author of numerous books, and Oscar Ramirez, architect and winner of the New Montreal Planetarium competition. The winning project | fig. 5 | provided a descriptive text that connected many of the architectural elements with technical justifications, as is shown by the position of the winning project on the grid.

Of the four finalists, the winning project is the only one that shunned the typical visual icons of environmentally sustainable building practice—green roof, solar panels, vegetable walls, etc. Rather, it focused on orienting the building so as to cause minimal disturbance to the wooded area, taking advantage of sun and of winter winds, positioning windows for natural sunlight and to avoid overheating, ensuring adaptability of space, flexibility of function, etc. It proposed a bold solution in terms of integration with the existing building, which resulted in a complex, clean, and audacious structure. Two of the four finalist projects proposed the more typical visible solutions to sustainable building such as green roofs and solar panels. Another runner-up project integrated green spaces throughout the interior of the expanded library proposal, but placed the entire layout of the new library on a single floor, showing a lack of consideration for the disturbance of the mature wooded site. This was a good example of a contradictory sustainable proposal: it did not respect the exterior mature vegetation yet included interior green spaces as compensation.

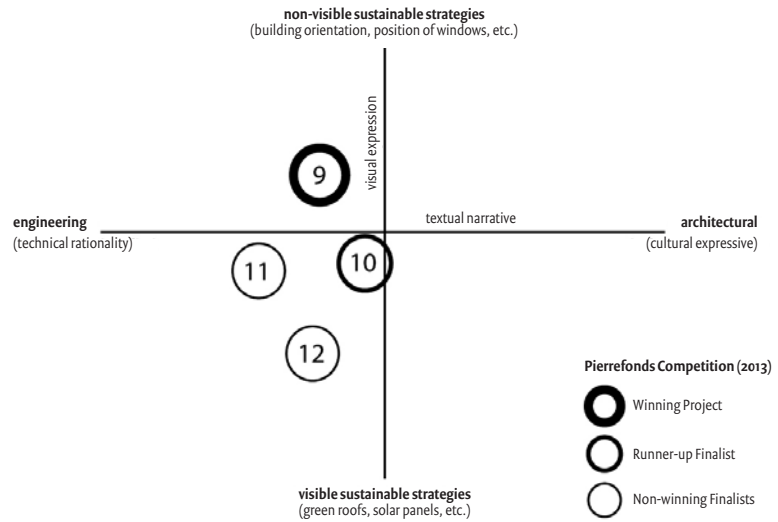
### 3. Discussion of Findings

Environmental certifications such as LEED have been at the heart of the new approach to designing for sustainability, especially in the first decade of the new millennium. Being a means of standardization, LEED alone hinders exploration and alternative thinking and fails to encourage a whole project vision in a competition context. Indeed, LEED fragments the architectural project into manageable slices for consideration of water, energy, site, air, etc. It has been, and continues to be, inadequate for the production of truly sustainable architectural design, yet remains the principal sustainability requirement in architecture competitions in Canada.

The provability of environmental interventions related to LEED has appeared quite important to juries, even if LEED credits can only be estimated grossly at



**Figure 6. Pierrefonds Library Competition (2013). Analysis of finalist projects.**



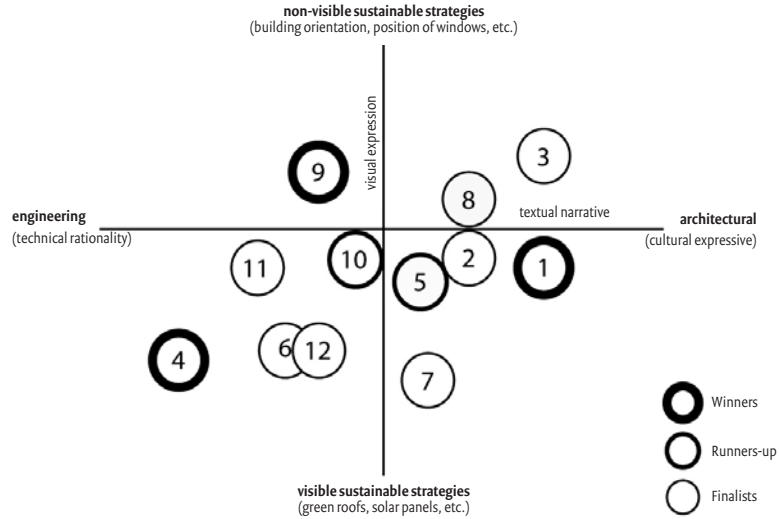
such an early point of design. This increasing need to quantify LEED credits represents a point of fragility in competitions, since the basis for judging some architectural projects has been to try to measure quality rather than to deliberate on the essence of quality through debate.<sup>42</sup> We have seen that over and above the proof of “greenness” (showing that the minimum LEED credits are attainable in competition proposals), it has become common practice that projects also represent icons of eco-efficiency by including a series of demonstrative devices, such as green roofs, vertical gardens, solar cladding, photovoltaic solar cells, visible heat pumps, wind turbines, and even formal biological analogies.

I have shown that the use of technology as visual communication can be problematic, since it may falsely communicate a positive action, specifically if the technology does not provide sustainable benefits. This pushes the quest for more sustainable solutions back. Nevertheless, some designers seeking to attain potentially improved levels of environmental performance increasingly refuse superficial greenwashing. Figure 7 shows a summary of the twelve projects from the three competitions presented in this paper. | fig. 7 | A shift seems to be occurring at the junction between the visual panel presentations and the descriptive texts. The three winning projects from competitions that were launched five years apart each reside in a different quadrant. The finalist projects in each competition are lagging behind the winners—as is seen in the shift that is occurring in a quasi-clockwise direction. Specifically, the winning project for the Pierrefonds Library Extension (2013) shows that design decisions regarding the experiential aspects and visual expression of the architectural project can be smartly and elegantly integrated with environmental considerations, ensuring that the project’s cultural aims are not compromised at the expense of environmental performance. But this is still a rare occurrence.

It seems rather that on the most part the aesthetic/expressive, objective/instrumental, and moral/practical dimensions of the project have come to be somewhat disconnected in both the conceptualization and judgment

42. J.-P. Chupin and C. Cucuzzella, “Environmental Standards and Judgment Processes in Competitions for Public Buildings,” *Geographica Helvetica, Swiss Journal of Geography*, special issue on competitions, Forms, Places, and Processes: Tracing Geographies of Architecture through Design Competitions, edited by Joris Van Wezemael (2011): 13–23; Cucuzzella, “When the Narrative.

Figure 7. Summary of the three competitions, 2003, 2008, 2013.



processes for many of the competition proposals. This seems to have an impact on the aesthetic qualities of some of the winning projects. Could it be that the environmental imperatives are actually imposing a shift in the textual narratives, the visual expression, and the spatial experience of architectural projects? Is the paradigm of “form follows performance” emerging more as a communicative vehicle than as a response to our contemporary sustainability crisis? ¶

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