

Casino Design, Sustainability, and Community Linkages: Requiring Excellence for Massachusetts Casinos

*A White Paper for the Massachusetts Gaming Commission
by the Massachusetts Chapter of the American Institute of Architects*



AIA Massachusetts
A Chapter of
The American Institute of Architects

Casino Design, Sustainability, and Community Linkages: Requiring Excellence for Massachusetts Casinos

*A White Paper for the Massachusetts Gaming Commission
by the Massachusetts Chapter of the American Institute of Architects*

By
Julie Taylor Esq.

MARCH 2013



AIA Massachusetts
A Chapter of
The American Institute of Architects

**Casino Design, Sustainability, and Community
Linkages: Requiring Excellence for Massachusetts
Casinos**

*A White Paper for the Massachusetts Gaming Commission
by the Massachusetts Chapter of the American Institute of Architects*

TABLE OF CONTENTS

Executive Summary2

Highlights of Design Forum4

Design Standard Recommendations6

Design Review Process Recommendations14

Gaming Statute Specifics18

Conclusions20

Contacts21

Additonal Resources22

Appendix A: Forum Presentation23

Appendix B: Information About Marginal Costs of Sustainability.....24

Appendix C: The Business Case for Green Buildings.....27

Appendix D: Links to Additonal Information.....32

Appendix E: Visual Examples.....33

Casino Design, Sustainability, and Community Linkages: Requiring Excellence for Massachusetts Casinos

*A White Paper for the Massachusetts Gaming Commission
by the Massachusetts Chapter of the American Institute of Architects*

EXECUTIVE SUMMARY

The Massachusetts Chapter of the American Institute of Architects (AIA MA) offers this White Paper to assist the Gaming Commission in meeting its statutory mandate to establish criteria for evaluation of gaming license applications on design excellence, integration with the community, and advancing sustainable development.

This White Paper recommends: (1) twenty specific criteria for design, sustainability, and community standards, and a possible rating system to evaluate each casino proposal on the twenty criteria; and (2) a framework for a design review process, which can be used both for initial selection of three casinos from among the applicants and for oversight of the design and development of each casino project. AIA MA and others are available to help the Commission and its staff on these issues. Please see the last section below for how to contact us.

The White Paper is intended to help the Commission ensure excellence for Massachusetts casinos. The Paper:

1. Highlights key Design Forum points on casino design, sustainability, and community linkages from the presentations by AIA MA, the Boston Society of Architects (BSA), and the American Council of Engineering Companies of Massachusetts (ACEC/MA) at a “Forum on Design Excellence for Massachusetts Casinos” that was held at the BSA in Boston on December 12, 2012. This Forum was an open meeting of the Commission.
2. Recommends Design, Sustainability, and Community Linkages Standards the Commission might adopt. The Commission will have to develop design criteria, for initial selection of three casino proposals from all the applications and for on-going oversight as the design of those casinos proceeds. These Standards incorporate the state Gaming Statute requirements, and are intended to be compatible with local and state requirements.
3. Recommends a framework for a Design Review Process. The Commission should adopt a Review Process to oversee the design of the casinos.¹ This Process will be the major tool to ensure the casino developments will comply with the design criteria (Standards) the Commission will issue and that what is built is the same as what the Commission initially approves. This Review Process would closely coordinate with local and state reviews.
4. Provides the specific gaming statute text regarding both the Commission’s mandate and its authority to establish design standards for casinos in Massachusetts General Laws Chapter 23K, Section 5 (Regulations) and in MGL c.23K, Section 18 (Objectives to be advanced), Subsection (8) (sustainable development).
5. Includes contacts and resources for help and information, including emails, links, and Appendices.

The three casinos that will be developed in Massachusetts present a unique opportunity to create a new model for casinos – a new standard of excellence in design, sustainability, and community linkages. The Commission is required by the gaming statute to issue regulations and has broad authority to evaluate casino proposals.

Massachusetts is not Las Vegas. The Commission can require design standards and a review process to help create three casino projects with high quality design - design that fits the scale and character of our cities and landscapes, strengthens local communities by responding to community needs and resources, and results in casino operations that meet high but achievable sustainability criteria (including renewable energy, energy efficiency, minimal stormwater, and climate resiliency).

Sustainable development criteria that result in high-performance green buildings and sustainable sites will also result in significantly reduced energy and water use. This offers long-term cost savings for casino operators and long-term benefits for casinos, surrounding communities, and the Commonwealth. Operations and maintenance costs amount to 80% of the costs of a project over its lifetime (far more than design and construction costs), so long-term savings from lower electricity, heating, cooling, and water costs can be significant.²

Compelling public policy reasons also support the Commission's issuing strong sustainability standards, in addition to the statutory requirements for the Commission to do so. These casinos will be huge projects in our small state. Buildings account for over 50% of total US energy consumption and 40% of US carbon emissions.

Current building and site design options, increasingly mainstream sustainability practices, and readily available building technologies for new construction and major renovations present exciting opportunities to dramatically reduce energy consumption and carbon emissions.

Massachusetts is now ranked number 1 in the U.S. in energy efficiency, and is a leader in sustainable design and green job creation. The Massachusetts casinos can benefit from these trends and from identification with Massachusetts leadership in these areas. Casino projects that are new models of excellence in casino design, sustainability, and community linkages will also enhance the state's reputation as a leader on policies that promote economic growth, green jobs, clean energy, environmental sustainability, and regional tourism.

Overall design excellence, however, remains the cornerstone of successful projects, with sustainability and community linkages being key components of excellent design. Although we have included various items of sustainability information to follow up on questions from the Commission at the Forum on Design Excellence (see Section 1 below), this Executive Summary concludes with an emphasis on the critical importance of design excellence in the Commission's mandate regarding criteria for the selection and development of casinos.

¹ This White Paper generally refers only to "casinos" but some of its design recommendations can be applied to the slot parlor development that is also authorized by the gaming statute along with the three casinos.

² 60 - 80% is typical. *Sustainable Preservation: Greening Existing Buildings*, Jean Carroon (Wiley 2010) at 292.

HIGHLIGHTS OF THE DESIGN FORUM

This section highlights key points on casino design, sustainability, and community linkages that were presented by speakers at a “Forum on Design Excellence for Massachusetts Casinos” that was organized by AIA MA and held in Boston at the BSA on December 12, 2012 as an open meeting of the Commission.

A transcript of the Forum is available, along with speaker biographies, on the Commission’s website at <http://www.mass.gov/gaming/meetings/meeting-archive/a-new-model-for-massachusetts-casinos-dec-12-2012.html>. The slides that were presented by six of the speakers are in Appendix A to this White Paper.

There were seven speakers:

- Vernon Woodworth of AKF Group and President of AIA MA provided an introduction and overview;
- Laura Wernick of HMFH Architects and President of the BSA discussed concepts of design excellence;
- Julie Taylor of Noble & Wickersham reviewed the gaming statute text on design and sustainability;
- Mark Walsh-Cooke of Arup and an ACEC board member reviewed sustainability features of high-performance buildings and Massachusetts Department of Energy Resources (DOER) programs;
- Anne-Marie Lubenau of the Bruner Foundation’s Rudy Bruner Award for Urban Excellence discussed community process and what worked (and did not) in the community process for the design of a casino in Pittsburgh;
- Alicia McDevitt of the Massachusetts Clean Energy Center (CEC) spoke about CEC programs; and
- Easley Hamner, formerly with Moshe Safdie and Associates and The Stubbins Associates, spoke about lessons learned from his experience in designing casinos in Singapore and Las Vegas.

The Forum concluded with Commissioners asking questions of the panel and with ensuing discussions.

Some of the key points made by the speakers include:

(a) Mr. Woodworth and Ms. Wernick both emphasized the critical links and interplay among quality design, sustainability, and community: A quality design requires incorporating high-performance sustainability features early in the design process (they cannot be “tacked on” later), and a project design cannot be high quality unless it is sensitive both to its physical location and to the nature of the surrounding community.

(b) Mr. Woodworth showed a street view of McKim, Meade and White’s 1880 Newport, Rhode Island casino, and discussed it as an example of how sensitive design can enhance community and environmental values, and thus contribute to the health of the social fabric and the ecosystem.³

(c) Ms. Wernick urged the Commission to have a strong design review process and do reviews early and often.

(d) She also discussed the importance of scale and massing, exterior elevations, context, access and circulation (how they work for pedestrians and cars), and landscaping.

The massing of hotels, restaurants, and parking facilities, when added to the gaming and retail components, can make the overall scale impact of the casino be immense. Casinos should be required to carefully calibrate massing of the entire project with the surroundings.

(e) Ms. Taylor clarified the Commission's mandate (what it **MUST** do) under the statute as well as its authority (what it **COULD** do) related to the design of casinos. Under the Gaming Statute, MGL c.23K, the Commission is mandated to: (1) Issue regulations with criteria for evaluation of casino applications, including design; and (2) Evaluate how an application advances the objective of sustainable development principles, including LEED, renewable energy and energy efficiency requirements, and other specifics. The Commission also has authority (it **CAN** do) to do things beyond this mandate based on the "including but not limited to" language in the statute. See Section 4 below for more on the statutory language and the Commission's mandate and authority.

(f) Mr. Walsh-Cooke and Ms. Taylor noted sustainable building technologies keep improving and are becoming increasingly common in the market, so that initial development costs to achieve high levels of sustainability in a building can often be comparable to costs for standard building practices (if integrated early in the process).

(g) It is clear that sustainable buildings provide major savings in long-term operating costs. (See Appendix B.) By setting high sustainability criteria for casinos, the Commission can help enable long-term profitability of the casinos as well as the environmental health of the surrounding communities, the state, and the planet.

(h) Mr. Walsh-Cooke presented slides with information about the Massachusetts Department of Energy Resources (DOER) funding incentives for combined heat and power generation and district energy distribution as well as DOER pilot programs on biomass and geothermal (ground source heat pumps).

(i) Ms. Lubenau noted in her discussion of the community process for the Pittsburgh casino a Teresa Heinz quote: "Nothing shapes quality of life so definitively – and so enduringly – as the design of the public realm."

(j) A community review process is an iterative process. It should include assessments of resources and impacts on existing community and environmental resources. A goal should be that both building design and operations make net positive contributions to surrounding communities and environment (elements such as neighborhoods, watersheds, energy grid, and transportation and utility infrastructure). This requires consistent follow-up.

(k) Mr. Hamner emphasized the fast pace and intense pressures inherent in casino developments, and the related need for the government to establish clear design review standards early in the process. He also pointed to Singapore's success with on-going reviews as the design proceeds, which resulted in the developers being consistently required to maintain all the design elements they initially promised.

(l) Mr. Hamner, citing publicly available information, noted the profitability of casinos in both Las Vegas and Macao. The Commission expressed interest in his slide showing the four criteria that Singapore used to weigh selection of the casino developer: (1) Tourism appeal and contribution was 40%; (2) Architectural Concept & Design was 30%; (3) Development Investment was 20%; and (4) Strength of Development Team was 10%.

³ AIA MA suggests casinos in downtown sites look to the example of the Newport casino in how it integrates with the street and the community and to several European casinos that successfully operate on main streets.

DESIGN STANDARD RECOMMENDATIONS

This section presents recommendations for Design, Sustainability, and Community Linkages Standards that the Commission might adopt for the casinos to be developed in Massachusetts. These Standards incorporate the requirements from the gaming statute. They are intended to be compatible with local and state requirements.

AIA MA recommends below twenty very specific design criteria for the Gaming Commission's consideration.

We have a few initial background comments. First, regarding LEED, the "sustainable development" mandate in MGL c.23K, §18(8) includes (but is not limited to) being "certified as gold **or higher**" (emphasis added) under the Leadership in Environmental and Energy Design (LEED) program of the US Green Building Council. There have been many significant advances in sustainable design since the 2011 gaming statute was drafted. In light of that and the huge negative environmental, energy, and climate impacts of buildings (see Appendix B), a LEED gold metric is too low a bar. The Commission's design standards should not just meet the minimal sustainability metrics set in prior years but should go beyond them. The Commission's mandate is to advance the objective of sustainable development. The Commission is given authority by the statute to require "higher" than LEED gold: Sub-section 18(8) says LEED "gold **or higher**" under the appropriate certification category.

AIA MA recommends the Commission issue standards that require all major elements of each casino project (all buildings, site development, parking, etc.) to be certified as LEED platinum⁴ under the USGBC "LEED for New Construction and Major Renovations" rating system. This LEED-NC category is an appropriate certification category for any casino project, as it covers both new construction and major renovations of existing facilities.

In addition, AIA MA recommends the Commission also require all casino developments to meet another LEED metric: the USGBC "LEED for Neighborhood Development" rating system. This LEED-ND rating system is appropriate as a metric for the three casinos, as it focuses on community and ecological impacts of large-scale developments. LEED-ND looks more at surroundings of a building; LEED-NC focuses more on the building itself. LEED-ND is an established rating system the Commission can use to evaluate various community-related criteria. It gives points for criteria such as: access to civic and public spaces and recreation facilities, tree-lined and shaded streets, agricultural land conservation, housing and jobs proximity, transportation demand management, brownfields redevelopment, and community outreach and involvement.

While AIA MA recommends requiring LEED-ND as a criteria and requiring gold as the level required, we do not believe it is necessary to require that casinos be "certified" under LEED-ND. Instead, we recommend that the Commission require that each casino project be "designed to meet the requirements" of LEED-ND. This "designed to meet" is the approach in the City of Boston's requirements for major projects under Article 37 of its zoning code. Boston's Article 37 requires large projects to be LEED "certifiable" (designed to meet LEED criteria), but it does not require a developer to register the project with the USGBC or get formal certification.⁵ In this way, the Commission can retain the authority (perhaps exercised through a panel of qualified advisors) over casinos for approvals, discretionary exceptions, and enforcement of compliance with community criteria.

⁴ Under current LEED rating systems, which are based on 100 possible points that can be awarded, being certified as gold requires a project to get 60 to 79 points and platinum requires 80 or more points.

Second, three communities that are potential casino sites are “Green Communities” under 2008 Massachusetts legislation known as the Green Communities Act: Springfield, Palmer, and Boston. As a condition of this designation, developments in these communities are already required to comply with the stretch energy code. Since a casino project in those cities will have to meet the stretch code for local approvals, the Commission should require all casinos, regardless of city, to exceed the stretch energy code; this is relatively easy to do.

Third, there are other standards that the Commission might find helpful to review as it develops its standards. One of these is the International Green Construction Code (IgCC) developed by the International Code Council. In general terms, the IgCC takes the LEED voluntary rating system and transforms it into an enforceable code (although it has an instructive flexibility regarding elective options). An additional resource created by the Institute for Sustainable Infrastructure (ISI) is the ISI “Envision” rating system for infrastructure aspects of development. AIA MA would be happy to discuss the IgCC, ISI, and other sustainability standards or methodologies approaches with the Commission or its staff.

AIA MA recommends the following twenty criteria as “Design, Sustainability, and Community Linkages Standards” the Commission might adopt. These criteria are grouped in the following eight categories: overall design, integration into surroundings, and tourism appeal; LEED and materials; energy (renewables, equipment, monitoring, and efficiency); operations (post-occupancy); community impacts; water; climate; and traffic and access (function and appearance). We welcome the opportunity to discuss these criteria in more detail:

A. OVERALL DESIGN, INTEGRATION INTO SURROUNDINGS, AND TOURISM APPEAL

1. *Project has overall architectural design and concept excellence. Both the entire project (all elements – casino, hotel, parking, etc.) and each element are aesthetically pleasing and provide overall high quality design.
2. *Project is integrated into surroundings and sympathetic to local landscape (not internal focus, blank facades), including but not limited to:
 - (a) Streetscape, scale, massing, exterior elevations are in harmony with the host community and surroundings.¹ Rather than create one giant building, the project takes the multiple mixed-uses (gambling, restaurant, hotel, etc.) and expresses those uses as separate and smaller buildings, and turns some of the ground level surface area into what looks and functions like streets, plazas, parks, and other forms of “public realm”;
 - (b) The design and the exterior materials are sensitive to or compatible with the context of the local area and region. In rural areas, the project fits into the adjacent landscapes. In urban areas, the project fits into adjacent buildings, streetscapes, and neighborhoods; and
 - (c) The exterior elevations do not present continuous blank facades to passersby, but instead have multiple exterior entry points as well as a substantial amount of exterior commercial storefront or other animating uses that enliven the street-level experience. (Note: See appendices for photographs and links with images of downtown casinos in Melbourne, Australia and Lisbon, Portugal that are successful examples of the multiple entry, lively street level facade element in (c) above.)
3. *Project has tourism appeal. It provides a high-quality aesthetic experience. It enhances the surrounding area (especially areas of scenic beauty or those with significant historic, ecological, or other features). The project provides interesting opportunities to learn about sustainability, local history, and regional natural resources.

B. LEED AND MATERIALS

4. *All major elements of the project (all buildings, site development, parking, etc.):
- (a) are certified as platinum under LEED-NC, the USGBC “LEED for New Construction and Major Renovations” rating system (in effect when construction documents are submitted for such element);
 - (b) are designed and constructed to meet the requirements of LEED-ND gold under the USGBC “LEED for Neighborhood Development” rating system (in effect when construction documents are submitted); and
 - (c) are designed to prohibit use of materials on the “Red List” issued by Living Building Challenge (see Appendix B for information about the Red List) (in effect when construction documents are submitted).

See statute at §18(8)(i). (Note: LEED requirements for project operations post-occupancy are addressed below in this White Paper under Section D “Operations”.)

C. ENERGY (RENEWABLES, EQUIPMENT, MONITORING, AND EFFICIENCY IMPROVEMENTS)

5. *Each building in the project exceeds:
- (a) the stretch energy code requirements in the Massachusetts building energy code (in effect at the time construction documents are finalized); or
 - (b) an equivalent commitment to advanced energy efficiency as determined by the Massachusetts Secretary of Energy and Environmental Affairs. See statute at §18(8)(ii).
6. *The entire project generates on-site at least 25% of its annual electricity from renewable sources. The definition of “renewable sources” (which might be sun, wind, geothermal, food waste, biomass, etc.) shall be what is qualified by the Massachusetts Department of Energy Resources (DOER) under MGLc.25A,11F, as of the time of submission of construction documents for any major element of the project. See statute at §18(8)(vi).
7. *The entire project also procures off-site the rest (i.e., the difference between 100% and what is generated on-site, which shall be at least 25% as required by criteria 6 above) of its annual electricity from renewable sources (as qualified by DOER) or through renewable energy credits. See statute at §18(8)(vi). Given that there are green renewable energy credits available, it should be relatively easy for a project to meet this standard.
8. *The project submits a plan to submeter and monitor all major sources of energy consumption, including a dedicated funding stream (a percentage of operating budget) to implement and maintain these. See §18(8)(vii).
9. *The project submits a plan to annually maintain and bi-annually improve energy efficiency of each structure, including a dedicated funding stream (a percentage of operating budget) to implement this. See §18(8)(vii).

⁵ Some view this “designed to meet” approach as preferable to LEED certification, because in their view that certification “gives away” authority for approval of a project to a third-party certifying organization.

⁶ “Harmony” with the surroundings does not preclude sensitive use of innovative materials or design elements that may contribute to overall design excellence.

10. *The project demonstrates that all gaming equipment is energy efficient (in accordance with the then-current best practices at the time the equipment is to be ordered) and that all electrical and HVAC equipment/appliances are EnergyStar labeled (except if unavailable). See statutes at §18(8)(v).
11. The project incorporates centralized, highly-efficient district heating and cooling systems and technologies, such as a co-generation (combined heat and power) system that can reasonably be expected to produce major savings and efficiencies in energy use.
12. The project demonstrates to the Commission's satisfaction that at least 1 key building in the project aims for net zero energy, and within 3 years of the project's opening, at least one building (of at least 50,000 square feet) is operating at net zero energy (on-site generation of energy equals or exceeds the energy consumed on-site).

D. OPERATION (POST-OCCUPANCY, ON-GOING, MONITORING AND IMPROVEMENT IN FUTURE)

13.
 - (a) The project design and budget require extensive initial commissioning of key systems by an independent commissioning expert.
 - (b) The project submits a reasonable plan for annual evaluations of key systems, including a dedicated funding stream (a percentage of operating budget) to implement this and any required maintenance or actions required as a result of such annual evaluations, and for re-commissioning at years five and ten. Annual reports will be required to be submitted to DOER of monitoring and maintenance actions needed and taken (with certification to the Commission of such submissions).⁷
 - (c) The Project after opening shall be certified under the USGBC "LEED for Existing Buildings" (Operations and Maintenance), and shall renew that LEED-EBOM certification in the intervals that the USGBC requires at the time of the initial certification. The Project should register with EnergyStar, and maintain that registration.

E. COMMUNITY IMPACTS

14.
 - (a) The project signage and lighting are energy efficient and sensitive to surrounding communities.
 - (b) The project demonstrates significant steps to minimize and buffer noise from restaurants, parking areas, traffic, etc.
15.
 - (a) The project provides significant community benefits and amenities (for schools, children, elders, local organizations, etc.), with a dedicated funding stream (a percentage of operating budget) to implement and maintain these.
 - (b) The project develops the particular benefits and amenities through a community resources assessment process in conjunction with the host community and, if appropriate for the site, neighboring communities.
 - (c) The project provides sustainability education programs for its employees and for visitors.

⁷ This reporting requirement should be discussed with DOER, including a discussion about whether funds would be needed to be dedicated for DOER's review of these reports.

F. WATER

16. *(a) The project is designed to conserve water so that each building would use 40% less water than a standard building of that type and size.
 (b) The design promotes reuse and recharge, and aims for self-sufficiency in water use. As noted in criteria 13, the project is required to meet LEED for Existing Buildings, including the LEED-EBOM requirements for water conservation. See statute at §18(8)(iv).
17. *(a) The project is designed using appropriate Institute for Sustainable Infrastructure (ISI) techniques to minimize impacts of stormwater (from roads, parking, buildings, etc.) and to maximize reclamation and reuse of stormwater on-site.
 (b) While the project should aim for net zero stormwater (meaning all stormwater is reclaimed and reused), it may be technically difficult to do so. The project should provide an offsite water savings mitigation project to mitigate the impacts on the surrounding area, and provide periodic reporting to the Massachusetts Department of Environmental Protection (with certification to the Commission of such reports). In a rural area, this might be an agricultural irrigation savings project, while in an urban area this might be a stormwater collection system and/or recharge system for major adjacent buildings. See statute at §18(8)(iv).

G. CLIMATE

18. (a) The project demonstrates climate adaptation and resiliency in accordance with the then-current best practices at the time each project element (casino, hotel, parking, etc.) is designed (measured at the completion of construction documents).
 (b) The project shall be available as community resource in extreme weather events to provide safe shelter (along with heat, lights, generators for charging of electronics, etc.) to local residents and to help coordination among first responders. (For the Commission's information on potential climate criteria, MEPA (the Massachusetts Environmental Policy Act) will require casino developers to report to the Office of Energy and Environmental Affairs on greenhouse gas impacts from their casino project proposals.)

H. TRAFFIC AND ACCESS (FUNCTION AND APPEARANCE)

19. *(a) The project demonstrates significant steps to mitigate vehicle trips and reduce traffic impacts in surrounding communities in accordance with the then-current best practices at the time each project element is designed. See statute at §18(8)(iii).
 (b) In addition, parking, access, circulation for autos, pedestrians, and deliveries, and the overall streetscape "work" (function well), are safe, and present pleasing appearances.
 (c) If parking is "hidden" or otherwise is centrally linked to the appearance and function of other project elements (i.e., a garage is not visible from one direction because another project element is in "front" of it), this does not change if the rest of project changes or shrinks in the course of design, value engineering, or construction.
20. *(a) The project, at the time of the initial opening of the casino, provides access to multi-modal means of transportation, so that there are functioning public transit options of rail, subway, and/or bus routes.

⁷ This reporting requirement should be discussed with DOER, including a discussion about whether funds would be needed to be dedicated for DOER's review of these reports.

- (b) If in an urban area, the project is required to present a reasonably detailed plan and schedule showing how public transit will tie into the project and what mitigation efforts are included in the project (and when such efforts will be implemented) to strengthen ties to public transit. If in a rural or suburban environment, the project is required to present a reasonably detailed plan and schedule showing how the project will work with the local RTA to establish either a new or future public transit tie-in and detailing what mitigation efforts the project will include to make that tie-in happen by opening day of the casino and to work effectively. See statute at §5(a)(3).

Beyond the twenty criteria noted above, the Commission may choose to add one or more additional requirements to its Design, Sustainability, and Community Linkages Standards. These additional requirements would address site-specific concerns about a particular site once the host community and the casino developer have agreed on the site. For example, a riverfront or rural site might present special concerns to be addressed.

Before turning to our recommendations for a design review process, we would like to provide a few notes to clarify our recommendations regarding these Design, Sustainability, and Community Linkages Standards:

- Note 1. An asterisk * at the beginning of 14 specific criteria set out above means that the subject matter of those criteria is explicitly mentioned in the gaming statute, MGL c.23K, either in §5(a) or in §18(8).
- Note 2. AIA MA recommends the Commission use some form of a rating system to implement the Standards in evaluating casino proposals. We suggest a rating system that include points, although other rating systems are also possible (ones that are entirely qualitative, for example, where ratings on all criteria are “high” or “low”). Whatever the ultimate rating system may be, we recommend that each project be rated or evaluated at each stage of the design review process on all 20 criteria (or whatever the ultimate number of criteria is determined).
- Note 3. One way to set up a rating system could be a rating system largely based on points, with a total of 100 possible points, but where there is also a qualitative “check” as follows. In order to be approved at each review by the Commission (to proceed with design, construction, or operations), the project has to:
- (a) Get a total of at least 75 points (see Note 4 below about criteria not being equally weighted);
 - (b) Get at least a “high” (not “low”) rating on each of the 14 criteria with an * (those specifically referenced in the statute); and
 - (c) Not get a finding of “undue adverse impact” on any criteria. This last rating element (the qualitative determination of “no undue adverse impact”) would allow the Commission some discretion beyond the specifics of the points-based parts of rating system to require changes in some project element if the Commission found something in that part of the project to be significantly objectionable in terms of the negative impacts it would create.⁸
- Note 4. There are various ways to construct the rating system for these criteria. AIA MA suggests a rating system that has three elements: a points-based rating (so each criteria is rated, perhaps from 1 to 5, with 5 as “highest” or “best”); a “high” or “low” grade on each of the 14 criteria with an *; and an evaluation on “undue adverse impact”. We also suggest that all three elements have to be considered when determining whether the Commission grants a license when it evaluates a casino developer’s proposal on the Standards (the 20 criteria). We propose that not all criteria be equally weighted (for example, on-site renewables should be weighted more heavily than project signage). We are willing to assist the Commission develop its rating system.

Note 5. The Standards would apply to all elements of the casino development and all phases. For example, if “Phase 1” is a casino building, hotel, restaurants, and a garage and “Phase 2” adds retail and a museum, the Standards would apply to the four building elements in Phase 1 and the two elements in Phase 2.

The Commission might also consider adding extra points in the rating system if a project goes “above and beyond” the required Design, Sustainability, and Community Linkages Standards and provide exceptional benefits in some way. Examples might include linking up with a local university for a demonstration project on sustainability technology, working closely with a local nonprofit on outstanding community programming, or partnering with the state on a demonstration pilot on renewable energy or energy efficiency technologies.

AIA MA recommends that the twenty criteria noted above be issued by the Commission as the “Design, Sustainability, and Community Linkages Standards” that the Commission would use as one of the many criteria that the Commission will use to evaluate the applications from potential casino developers in order to select the three that will be granted a gaming license and allowed to proceed with designs for the three casino projects.

These Standards would also be issued by the Commission to serve as the design criteria used in later stages when the Commission oversees the design, construction, and operations of each casino project.

⁸ A requirement for a project to not to cause an “undue adverse impact” or “unreasonable burden” is a central element in Vermont’s Act 250 law, which evaluates major projects against 10 criteria. 10 V.S.A. §6085.

DESIGN REVIEW PROCESS RECOMENDATIONS

This section presents recommendations for a Design Review Process the Commission might adopt for oversight of the casinos to be developed in Massachusetts. The Design Review Process would ensure that the casino developments comply with Design, Sustainability, and Community Linkages Standards the Commission would issue. This Design Review Process would coordinate with the local and state reviews, as noted in detail below.

The Design Review Process would function in two stages:

- (1) In the first stage when the Commission initially selects three casino developers and proposals from among all the January 2013 applicants by the Commission's reviewing the developers' responses to the Design, Sustainability, and Community Linkage Standards that the Commission will issue this year; and
- (2) In the later stages when the Commission has to oversee the design, construction, and operations of each casino project. We suggest that the later stages of the Design Review Process be largely implemented through a Design Review Board ("DRB"), as noted in more detail below.

The Design Review Board might involve three representatives, although it could have more, with additional representatives providing a broader range of expertise for the Commission, such as traffic engineering, energy efficiency, signage, and landscape architecture. AIA MA suggests the Commission consider a three-member DRB with one member designated by the Commission, one member by the host community, and one member who is designated as the collective representative of the neighboring communities.⁹ The Commission's representative would be "official" in that he or she would have authority to enforce compliance with the Commission's Standards. The two community representatives would be "advisory" in that they would have the rights to receive notice and to comment, but if the three DRB representatives cannot reach consensus on a decision, then the Commission's representative would have authority to articulate the official decision of the DRB. As the community representatives would be members of the Commission's Design Review Board and the Commission should require all the representatives to use their best efforts to reach consensus, this would minimize the chances of the Pittsburgh problem where the community's views had little official protection.

AIA MA recommends that the Commission's representative be an architect who is both familiar with large scale projects and an acknowledged expert on high-quality design. There will be a substantial and long-term time commitment to participate in the Design Review Process for any one casino (and there will be reviews for three casinos). We suggest that the Commission's representative be hired as staff or retained as a design consultant. (It is likely that the Commission will decide it needs three Design Review Boards, with one for each casino. While a single Commission representative might theoretically participate in all three DRBs, which might help provide the Commission with a broad understanding of best practices as the three casino designs proceed, we think the time and scheduling involved make it unlikely one person could cover all three major projects.)

This Commission representative would be the "eyes and ears" of the Commission and promptly report back to the Commission any significant design issues or questions. He or she would also be the Commission's "voice" that would engage in the discussions that typically arise during design reviews as a design progresses.

⁹ Given the complexities of casino projects and the sophistication of developer teams, we suggest the two community representatives each be required by the Commission to (a) have at least 10 years professional experience in design and construction, (b) arrange ample opportunities for community input by local residents and business, and (c) reflect that input in the comments of the Design Review Board on casino developments.

The Commission's Design Review Board (with three representatives designated as above, if this suggestion is implemented) would participate in a formal casino Design Review Process, which could work as follows:

1. The Commission's Design Review Board would attend and participate in all major design-related hearings on and reviews of a casino development proposal, including the required governmental reviews at the local, state, and federal levels (such as zoning, planning, MEPA, wetlands, etc.).
2. The casino developer would send copies to all DRB members of all the design and permit submissions by the developer that are sent to any local, state, or federal agency, department, commission, etc.
3. All three members of the DRB would have the opportunity to comment in the local, state, and federal review process (unless it is determined or agreed that such comments would be prohibited by applicable law), but their comments would be restricted to those clearly related to the Commission's Design, Sustainability, and Community Linkages Standards. For example, the DRB members could comment at a local hearing on whether the project design was appropriately "integrated into its surroundings" (a requirement of the gaming statute), but not on whether it meets the local setback requirement. The DRB would have a budget that allowed for peer review analyses of technical submissions if necessary to evaluate those submissions regarding compliance with the Standards.
4. The Commission would have the equivalent of a "veto" in the Design Review Process. If at any review, the project violates any Design, Sustainability, and Community Standards that the Commission issues (whether the 20 criteria noted above or otherwise), then the developer would be required to revise the design to comply with the Standards. The Commission's designated representative on the DRB would have delegated authority to find a project does not comply with the Standards (provided this DRB member had previously informed the Commission in a timely manner of his or her recommendation regarding such non-compliance finding and the Commission had no questions or objections). The license awarded to the developer would be conditioned on on-going compliance with the Standards.¹⁰
5. In general, this Design Review Process would operate in parallel with the local, state, and federal reviews. However, there would be requirements for submissions and presentations to the Commission and the Design Review Board at several critical points in the design and construction process; we assume these would be held as public meetings. These presentations to the Commission and DRB might be:
 - (1) At the beginning, as soon as the host community and the developer have reached an agreement (this is likely to be when the overall design for the entire project is still in the concept stage);
 - (2) at the end of schematic design (when the major systems are outlined, and most decisions about key elements of the project are being finalized), before any project building moves ahead into design development or preparations for the first construction "fast track" package;
 - (3) at the end of the design development phase;
 - (4) when the first construction package is issued but before it is bid and/or at the end of the construction documents phase, before any major demolition or construction has begun;

- (5) at reasonable points (as determined by the Design Review Board) after construction has begun;
 - (6) prior to opening of the first building; and
 - (7) at reasonable points (as determined by the DRB) after the project has been operating for some time to evaluate the operations and maintenance-related Standards. The DRB would advise the Commission as to the appropriate points for presentations for each casino project.
6. The Process would apply to all elements of the casino development and all phases. For example, if “Phase 1” is a casino building, hotel, restaurants, and a garage and “Phase 2” adds retail and a museum, the full Design Review Process would apply to all elements in Phase 1 and all elements in Phase 2.
 7. The DRB should work with local community representatives to ensure that a community design review process led by others allows for appropriate community input and, if appropriate, suggest to the local government, developer, and community representatives how they might improve that review process.
 8. The DRB should prepare reports, perhaps quarterly, on the Design Review Process for all three casinos. Those reports to the Commission should include suggestions on how the Design Review Process might be improved, especially with respect to the quality of design, sustainability, and community linkages.

There are many ways a Design Review Process and a Design Review Board might be structured. AIA MA is available to discuss these ideas further with the Commission or its staff. Other organizations are also available to assist the Commission as it considers how to prepare and implement a Design Review Process.

¹⁰ The gaming statute, MGL Chapter 23K, at §1(9), explicitly states that any license awarded by the Commission “shall be a revocable privilege and may be conditioned, suspended or revoked” for breach of a condition or failure to complete any promise made in return for receiving a license.

GAMING STATUTE SPECIFICS

It may be helpful for the Commission and others who read this White Paper to have available for easy reference the key relevant text from the gaming statute.

Massachusetts General Laws (MGL) Chapter 23K (Gaming) addresses casino design in two key sections (other text in the statute is also relevant – see a few examples noted at the end of this section). Section 5 (Regulations) of MGL c. 23K requires the Commission to issue regulations that prescribe design criteria for evaluation of applications for a gaming license. Section 18 (Objectives to be advanced), Subsection (8) of MGL c.23K requires the Commission to evaluate how the casino applications advance the objective of sustainable development (including LEED and energy efficiency).

The text from MGL Chapter 23K (Gaming), Section 5(a) (Regulations) reads as follows:

*“The Commission shall promulgate regulations for the implementation, administration and enforcement of [the gaming statute] including, **without limitation**, regulations that:...*

*(3) Prescribe the criteria for evaluation of the application for a gaming license including, with regard to the proposed gaming establishment, **an evaluation of architectural design and concept excellence, integration of the establishment into its surroundings, potential access to multi-modal means of transportation, tourism appeal** [as well as an applicant’s financial strength].”*

(text in bold is emphasis added).

The “mandate” in Section 5 is that the Commission is required to issue regulations to implement, administer and enforce the gaming statute. The Commission’s “authority” in Section 5 is broader than this, as the statutory text says that Commission is NOT limited to issuing regulations that set criteria for design, integration into the surroundings, transportation access, and tourism appeal. An example of what the regulations could also include is the sustainability objectives in Section 18(8) of the statute.

In MGL c.23K, Section 18 (Objectives to be advanced) lists various objectives the statute requires be advanced. One of those objectives is sustainability. More specifically, Subsection (8) (sustainable development) says:

*“In determining whether an applicant shall receive a gaming license, the commission **shall evaluate and issue a statement of findings of how each applicant proposes to advance the following objectives:**...*

*(8) utilizing **sustainable development** principles including, but **not limited to:***

- (i) being certified as **gold or higher** under the appropriate certification category in the Leadership in Environmental and Energy Design [LEED] program created by the United States Green Building Council;*
- (ii) meeting **or exceeding the stretch energy code** requirements contained in Appendix 120AA of the Massachusetts building energy code or equivalent commitment to advanced energy efficiency as determined by the secretary of energy and environmental affairs;*
- (iii) efforts to **mitigate vehicle trips**;*

- (iv) efforts to **conserve water and manage storm water**;
- (v) demonstrating that **electrical and HVAC equipment and appliances will be EnergyStar labeled** where available;
- (vi) procuring or generating **on-site 10 per cent of its annual electricity** consumption from **renewable sources** qualified by the department of energy resources under section 11F of chapter 25A;
- (vii) developing an ongoing plan to **submeter and monitor** all major sources of **energy consumption** and undertake **regular efforts** to maintain and **improve energy efficiency** of buildings in their systems;

(text in bold is emphasis added).

The “mandate” in Section 18, Subsection (8) is that the Commission is required to evaluate each application on how it advances the objective of sustainable development principles and what sustainability tools are used. Seven examples of sustainability criteria are listed (LEED, renewable energy, etc.). The Commission’s “authority” in Section 18, Subsection (8) is broader than these seven criteria, as the statute says the Commission is NOT limited to consideration of those seven criteria. Two examples of sustainability criteria that could also be included are ones that we include in our list of criteria above: A requirement for a centralized, highly-efficient district heating and cooling system and technologies, such as a combined heat and power (co-gen) energy system; and a requirement for post-occupancy commissioning of projects at 5-year intervals.

Other sections of the gaming statute also inform interpretation of the scope of Commission’s mandate and its authority regarding the excellence of design, sustainability, and community linkages. A few examples are:

- Recognizing the importance of the state’s **unique cultural and social resources** and **integrating them** in developments shall be “a **key component**” of a decision on a license. MGL c.23K at §1(7).
- “[P]romoting **local small businesses** and the **tourism** industry is **fundamental** to the policy objectives” of the gaming statute. MGL c.23K at §1(6).
- The “**power and authority granted to the commission shall be construed as broadly as necessary** for the implementation, administration and enforcement” of the gaming statute. MGL c.23K at §1(10).”
- “The commission shall have all powers necessary or convenient to carry out and effectuate its purposes including, but not limited to, the power to:...(12) **develop criteria, in addition to those outlined in this chapter, to assess which applications for gaming licenses will provide the highest and best value to the commonwealth and the region**” in which a casino is to be located. MGL c.23K at §4(12).

(emphases added).

CONCLUSIONS

AIA MA recommends twenty specific criteria as “Design, Sustainability, and Community Linkages Standards” the Commission might adopt, grouped in categories: overall design, integration into surroundings, and tourism appeal; LEED and materials; energy; operations; community impacts; water; climate; and traffic and access.

AIA MA also recommends a framework for a design review process, for the Commission’s initial selection of three casinos from among the applicants and its oversight of the design and development of each casino project.

The Massachusetts Chapter of the American Institute of Architects welcomes the opportunity to meet with the Commission or its staff to discuss any of our recommendations in this White Paper or any related issues. Individual and organizational contacts, appendices (including some visual examples), and other resources for assistance and further information are listed on the following pages.

The Commission has an important responsibility and an opportunity to create a new model for the casinos that will be developed in Massachusetts and change the communities where they will be developed and operated. The Commission should require a new standard of excellence in design, sustainability, and community linkages.

CONTACTS

Speakers who presented at the December 12, 2012 Forum on Design Excellence for Mass. Casinos:

Vernon Woodworth FAIA
2012 President, AIA Massachusetts
AKF Group
41 Farnsworth Street
Boston, MA 02210
617-535-8242
vwoodworth@akfgroup.com

Laura Wernick AIA,
2012 President, Boston Society of Architects
HMFH Architects
130 Bishop Allen Drive
Cambridge MA 02139
617-844-2113
lwernick@hmfh.com

Julie Taylor Esq.
Noble & Wickersham LLP
1280 Massachusetts Avenue
Cambridge, MA 02138
617-491-9816
jt@noblewickersham.com

Mark Walsh-Cooke P.E.
Principal
Arup
955 Massachusetts Avenue
Cambridge MA 02139
617-349-9228
Mark.Walsh-Cooke@arup.com

Ann-Marie Lubenau AIA
Director
Rudy Bruner Award for Urban Excellence
Bruner Foundation
130 Prospect Street
Cambridge, MA 02139
617-492-8404
alubenau@brunerfoundation.org

Alicia McDevitt
Executive Director
Massachusetts Clean Energy Center
55 Summer Street, 9th Floor
Boston, MA 02110
617-315-9355
abartonmcdevitt@masscec.com

Easley Hamner FAIA
Retired
3 Ellery Square
Cambridge, MA 02138
617-629-2100
wehamner@earthlink.net

ADDITIONAL RESOURCES

John Nunnari Assoc AIA

Executive Director

MA Chapter of the American Institute of Architects (AIA MA)

290 Congress Street, Suite 200

Boston, MA 02110

617-901-4685

jnunnari@architects.org

Eric White

Executive Director

Boston Society of Architects (BSA)

290 Congress Street, Suite 200

Boston, MA 02110

617-391-4005

ewhite@architects.org

Abbie Goodman

Executive Director

American Council of Engineering Companies of MA (ACEC/MA)

One Walnut Street

Boston, MA 02108

617-305-4112

agoodman@engineers.org

Galen Nelson

Director, Intergovernmental Partnerships

Massachusetts Clean Energy Center

55 Summer Street, 9th Floor

Boston, MA 02110

617-315-9375

gnelson@masscec.com

Maeve Bartlett

Director, Massachusetts Environmental Protection Agency

Executive Office of Energy and Environmental Affairs (EEA)

100 Cambridge Street, Suite 900

Attn: MEPA Office

Boston, MA 02114

617-626-1041

maeve.valleybartlett@state.ma.us

Ian Finlayson

Manager, Buildings and Climate Program

MA Department of Energy Resources

100 Cambridge Street, Suite 1020

Boston, MA 02114

617-626-4910

ian.finlayson@state.ma.us

Ken Kimmell

Commissioner

MA Department of Environmental Protection

One Winter Street

Boston, MA 02108

617-626-1137

ken.kimmell@state.ma.us

Geoffrey Beckwith

Executive Director

Massachusetts Municipal Association

One Winthrop Square

Boston, MA 02110

617-426-7272 x101

gbeckwith@mma.org

Boston Bar Association

c/o Julie Taylor

Boston Bar Association

16 Beacon Street

Boston, MA 02108

617-491-9816

jt@noblewickersham.com

Tom Murphy

Senior Research Fellow

Urban Land Institute

1025 Thomas Jefferson Street, NW

Suite 500W

Washington DC 20007

202-624-7110

tmurphy@uli.org

APPENDIX A: FORUM PRESENTATION

Due to the amount of slides displayed at the December 12, 2012 “*Promoting Sustainability, Strengthening Communities and Achieving Design Excellence: A New Model for Massachusetts Casinos Forum*,” please use the link below to view/download copies of the presentation.

<http://www.architects.org/committees/aia-massachusetts-government-affairs-committee>

APPENDIX B: INFORMATION ABOUT THE MARGINAL COSTS OF SUSTAINABILITY

Business Case for LEED | U.S. Green Building Council

<http://new.usgbc.org/leed/applying-leed/leed-for-business>



LEED is good for business

Green Building is good for the environment. It is good for our health. It is essential for our future.

But for a benefit that will impress even the bean counters among us, consider this: Green building will boost your bottom line.

How LEED certification can help your business.

1. It sets you above in a competitive landscape.

Green buildings are attracting attention from a growing number of buyers and tenants who prefer lower operating costs and healthier indoor environments. When developers chose green for new construction, occupancy increases 6.4 percent and rent 6.1 percent for new construction. For existing buildings undergoing green updates, occupancy increases 2.5 percent and rent increases 1 percent.

See the cost benefits of green building, according to building owners, in the chart below.

	Operating Cost	Building Value	ROI	Occupancy	Rent
New Construction	drop 13.6%	rises 10.9%	improves 9.9%	rises 6.4%	rises 6.1%
Existing Bldg Projects	drop 8.5%	rises 6.8%	improves 2.5%	rises 2.1%	rises 19.2%

Source: McGraw Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.

Occupants also tend to appreciate the “bragging rights” that accompany a LEED badge of honor.

“With LEED certification, Best Buy gains the advantage of third-party verification. We like that stamp of approval,” says Danielle Tallman, associate development manager at Best Buy. “It sets us apart from other retailers and allows us to promote the very tangible difference that we’re making.”

2. It reduces risk.

LEED certification goes beyond minimum building code requirements. Third-party verification of your building’s ability to protect indoor air quality, for instance, can protect you against health-related lawsuits.

“We now have a large enough, detailed enough body of data to say that the presumption is ‘why wouldn’t you do a green building?’” says Greg Kats, senior director and director for climate change policy at Good Energies. “It’s very cost effective, and it reduces risk in a number of areas including health, exposure to energy and water prices and obsolescence.”

LEED certification can also help protect against financial risk through faster sales and leasing of green buildings compared to similar buildings in the same town. Green buildings are, on the whole, easier to rent and sell.

3. It's worth saying again: LEED attracts tenants.

Savvy tenants are looking for the benefits that green buildings offer.

"We have large tenants, 300,000-square-foot users, who come to us and the first thing they ask is if we are LEED-certified. These blue-chip tenants can use their new LEED office as another bullet point to promote how they are sustainable; it's a built-in marketing package for them," says Bentley Forbes, vice president and general manager of Prudential Plaza Chicago.

Today's Class A office space is green. Lease-up rates for green buildings typically range from average to 20 percent above average.

4. It's cost effective.

Green building pays. LEED can help it pay even more.

When the property management firm for Adobe decided to seek LEED certification for Adobe's San Jose headquarters, it did so mainly for recognition and third-party validation of the green building features it had already instituted. It ended up with much more.

"Through our energy conservation and related projects up to that point, we had already realized savings of \$647,747 per year with an annual return on investment of 106 percent. We had even had several engineering firms tell us we had pretty much done all that there was to do," says George Denise, global account manager at Cushman & Wakefield. "As it turned out, LEED is such a rigorous and methodical process, through the process of certifying our buildings we found another \$534,398 in annual savings with an even better annual return on investment of 148 percent!"

"LEED is more than a standard to benchmark against. It is in a very real sense a blueprint for achieving energy and related conservation savings."

Per square foot, the cost for buildings seeking LEED certification falls into the same range as buildings not seeking certification. On average, an upfront investment of 2 percent in green building design results in lifecycle savings of 20 percent of the total construction cost - more than 10 times the initial investment.

Additionally, sale prices for energy efficient buildings are as much as 10 percent higher per square foot than conventional buildings.

5. It offers "green magic."

A 2008 CoStar Group study found that green buildings outperform their

non-green peers in key areas such as occupancy, sale price and rental rates. Sometimes, by wide margins.

LEED buildings command rent premiums of \$11.33 per square foot higher than conventional buildings and boast 4.1 percent higher occupancy, according to the study. Rental rates in Energy Star buildings represent a \$2.40 per square foot premium over comparable non-Energy Star buildings and have 3.6 percent higher occupancy.

“Call it green magic,” writes Adam Aston in Business Week. “According a pair of studies that offer the first broad-scope examination of the economics of green buildings, green buildings really do it all: lower

APPENDIX C: THE BUSINESS CASE FOR GREEN BUILDINGS

**BSA Committee for the Advancement of Sustainability:
The Business Case for Green Buildings
Ken Fisher AIA and A. Vernon Woodworth AIA**

June 14, 2012 draft

I. Executive Summary.

Sustainable construction holds the promise of benefits to the environment and society in many ways. This paper seeks only to document the impacts of green buildings on the financial bottom line. The business case for green buildings is extensive and compelling. The authors anticipate that these economic considerations will continue to drive the growth of the green building sector as the process of market transformation follows its current trajectory.

II. Market Transformation

The principle goal of sustainable design is to lessen the environmental impact of building construction and operations. These concerns have not played a major role in the evolution of the construction industry prior to the 21st century. Green building requires a different mindset, as well as different materials and technologies. The design process is more involved, construction more complex, and additional activities such as commissioning add to the cost and timeframe of a projects' completion.

Nevertheless as green building moves from the innovative fringes to center stage the construction industry has adapted and first costs have declined to the point where sustainable construction has been shown to be, on average, equivalent in cost to standard construction. This is the natural outcome of the process known as "market transformation" whereby a policy objective (sustainable construction) is furthered by the removal of barriers in the marketplace. Market transformation for green building has been facilitated by the USGBC's LEED rating systems for which qualifying projects must utilize and document sustainable strategies and materials. The popularity of LEED certification has reoriented the design and construction industries, resulting in new patterns of "business as usual" throughout the construction marketplace.

Market transformation with regard to sustainable design is an on-going process. Incentives, rebates, tax deductions, tax-exemptions, low-interest loans, and "stretch" codes are commonplace methods for encouraging design and construction that achieve higher levels of environmental performance. These programs provide the incentives for skill development in the construction sector, skills which can then be offered in an expanding market.

III. First Costs

Davis Langdon, an international real estate consulting firm with a reputation for sound research, has published a careful analysis of the cost of green buildings, entitled "Costing Green: A Comprehensive Cost Database and Budgeting Methodology"ⁱ. Based on extensive data this paper concludes that buildings designed and built to be LEED certified do not necessarily cost more than buildings designed only to minimum code requirements. In a study entitled "Managing the Cost of Green Building" the authors determined that analysis and planning can go a long way to mitigating the first costs of sustainable systems and designⁱⁱ. The General Services

Administration has commissioned a “LEED Cost Study” concluding that a Federal Courthouse or government office building may entail a cost premium of 1% to 8% depending on the level of LEED achievedⁱⁱⁱ. As new methods and technologies become increasingly integrated into the construction industry these first costs are likely to disappear. Conclusions of the Davis Langdon study in 2004 were that “the cost per square foot for buildings seeking LEED certification falls into the existing range of costs for buildings of similar program type”, and “many projects can achieve sustainable design within their initial budget, or with very small supplemental funding”.

IV. Operations

If building operations and employee productivity are factored into the total life-cycle costs of a building then first costs (design and construction) typically amount to no more than 2% of total costs^{iv}. Green buildings offer economic benefits throughout a building’s lifecycle. These include:

1. Operations: Hard Dollars

Energy Green buildings use less fossil-fuel based energy, thereby resulting in lower operating costs. In the effort to reduce carbon emissions and lower our dependency on foreign oil, conservation (i.e. using less energy through more efficient design and operation) is the most effective strategy. Buildings that require less revenue to heat, cool, and light yield a greater percentage of income for profit, expansion, and reinvestment.

Water Water costs money. Green buildings conserve water as well as energy, sometimes thousands of gallons per year per occupant.

Property Values Green Buildings command higher resale prices.

Lower Vacancy Rates Lower vacancy rates have been documented to be consistent consequences of providing healthier interior environments^v.

Increased Retail Sales: Studies have shown that retail sales are greater where daylighting strategies are employed.

2. Operations: Soft Dollars

Decreased infrastructure demand: When a building uses fewer resources it requires less infrastructure support. Savings on water and sewage costs are in hard dollars, but the reduced demand on local infrastructure can be counted as an additional soft cost. This benefit accrues largely to the municipality where the green building is located, yet the likelihood is that this will be recognized and rewarded in the form of tax credits or deductions as a standard practice in the near future^{vi}.

Improved employee attendance and reduced turn-over: Day-lighting and user controls have been shown to have a direct impact on building users, including perceived well-being, and physical health. These factors have also been shown to reduce worker turn-over.

Increased employee productivity: The same environment that improves occupant wellbeing also supports enhanced productivity. Cost savings to employers are so significant that they have been demonstrated to offset increased lease costs. Productivity costs have been estimated to be 112 times greater than energy costs in the workplace^{vii}. This one factor may outweigh all others in calculating the economic benefits of green buildings.

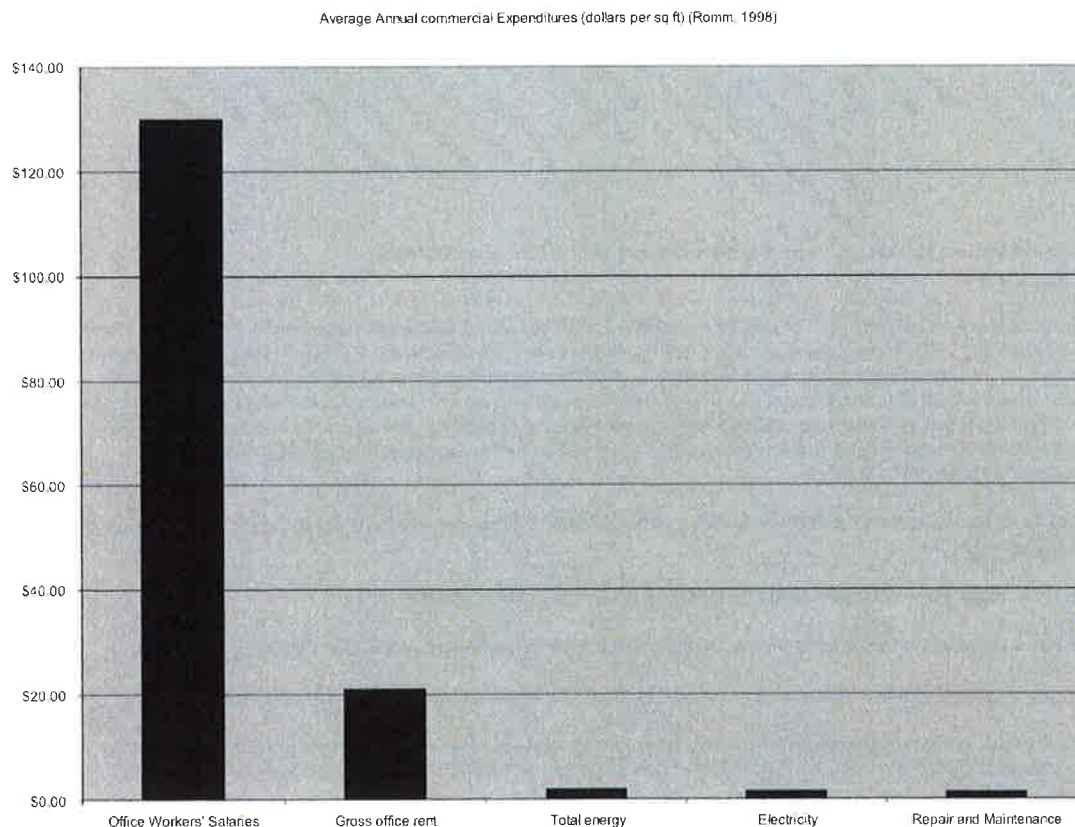
Reduced Churn: Higher occupant satisfaction results in lower tenant turn-over rates. This, in turn, results in lower vacancy rates and less capital spent on fit-outs.

Lower Insurance Risks: The Insurance industry is recognizing that green buildings reduce risks in a number of areas. Greater energy self-reliance means less likelihood of

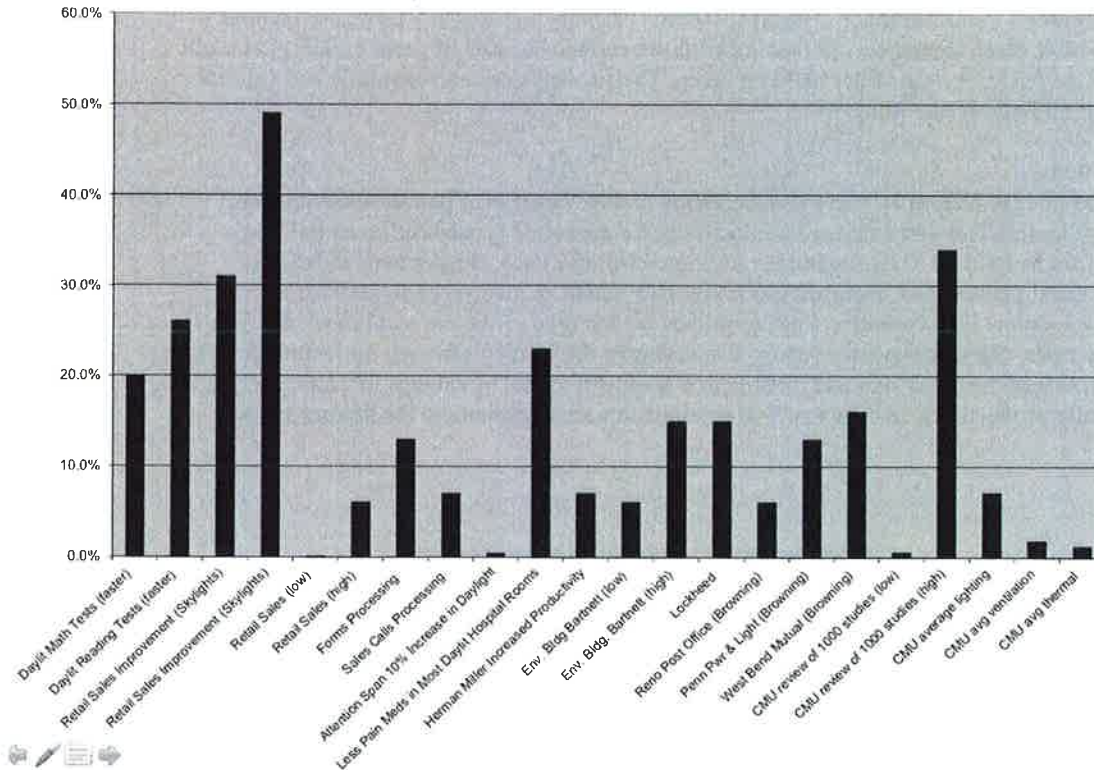
power failure. Increased indoor air quality reduces liability exposure. And there are other examples. A reduction in premiums is a logical outcome of these features. Fireman's Fund Insurance Company, the first property and casualty insurance company to offer green insurance, has researched the economic benefits of green buildings as well as the business risks of not building green. Their conclusions correspond to and validate the findings of this study^{viii}.

V. Conclusions

Between the savings offered by energy conservation and the benefits of increased occupancy rates, higher leasing fees and enhanced productivity, the economic benefits of green buildings can simply not be ignored. Data supporting additional benefits such as reductions in healing time for hospital patients and improved test scores of students in green schools also have significant economic implications^{ix}. Further studies are likely to refine the cost/benefit analysis of building green, but with regard to return on investment the verdict is in: any initial premium resulting from sustainable design and construction is quickly offset by savings in water, energy, and especially productivity, savings that will continue to accrue throughout the lifetime of the building.



Productivity Increases



Graphics courtesy of Michael Ermann, Associate Professor Virginia Tech School of Architecture
+ Design merman@vt.edu

ⁱ "In a comparison between all projects – LEED seeking versus non-LEED, something interesting came to light: the cost per square foot for the LEED-seeking buildings was scattered throughout the range of costs for all buildings studied, with no apparent pattern to the distribution...In other words, any variations in the samples, or the sample averages, were within the range to be expected from any random sample of the whole population". Costing Green: A Comprehensive Cost Database and Budgeting Methodology, Davis and Langdon July 2004. This report was updated with a larger sampling of buildings and additional building types as The Cost of Green Revisited: Reexamining the Feasibility and Cost Impact of Sustainable Design in the Light of Increased Market Adoption Davis and Langdon 2007.

ⁱⁱ Syphers, Geof, et al. Managing the Cost of Green Building, KEMA, 2003. Available at: <http://www.ciwm.ca.gov/greenbuilding/Design/ManagingCost.pdf>

ⁱⁱⁱ LEED Cost Study Steve Winter Associates 2004 for the General Services Administration.

^{iv} John McGowan, CEM, Author, Chairman Emeritus, DOE GridWise Architecture Council and CEO of Energy Control Inc.

^v The Relationship Between Corporate Sustainability and Firm Financial Performance University of Notre Dame 2012.

^{vi} For instance, Carroll County in Maryland offers property tax credits to commercial or industrial buildings which meet specific green building standards. In addition utilities offer incentives such as grants and technical assistance, and State and Federal governments provide additional funding opportunities.

^{vii} The Economics of Biophilia: Why Designing with Nature in Mind Makes Financial Sense Terrapin Bright Green 2012 p. 3.

^{viii} Fireman's Fund Insurance Company findings: The investment of an additional 3% of project costs in the design phase can reduce construction costs by 10%. The Advantages to Building Green include:

- Green buildings generate an average increase of 7.5 percent in a building's value and a 6.6 percent improvement in return on investment, while decreasing operating costs by 8 to 9 percent, according to McGraw-Hill Construction.
- Higher revenue due to higher rents and occupancy rates. Vacancy rates of green buildings are lower than existing buildings. The CoStar Group found that LEED-certified buildings occupancy rate are 92 percent versus 87 percent for traditional buildings.
- Lower operating costs by reducing waste output and energy consumption. The Environmental Protection Agency found that green buildings with a recycling focus can reduce waste output by 90 percent and use 30 percent less energy, which equates to a five percent increase in net operating income.
- Attract and retain quality tenants. Improved indoor air quality in green buildings result in reduced absenteeism, and possibly higher productivity that could increase sales. Green buildings also make it possible to have government tenants.
- Better insurance risk. Green buildings suffer fewer losses and are safer to insure because of the commissioning process required to become LEED certified. The demand for green buildings continues to climb, the company said, noting research last year by McGraw-Hill Construction that found the value of green building construction is expected to reach \$60 billion in 2010, up from \$12 billion in 2008. "Green buildings can boost real estate owners' bottom line by protecting and building net operating income, attracting and retaining quality tenants and improving the environment," said David Cohen, senior director of real estate, Commercial Insurance at Fireman's Fund, in the company's material. "Simply put, green buildings create a triple net effect, benefitting the owners' bottom line, its tenants and the environment."

The Risks of Not Pursuing a Green Building Strategy:

- Risk of obsolescence. As the U.S. Green Building Council certifies more and more buildings will traditional buildings be able to compete? Will the value of a traditional building decline and will late comers realize any first mover benefits? Green buildings are the future and are not a passing trend.
- Reputational and transactional risk. If a building isn't known as green it will experience lower occupancy rates and rents.
- Regulatory risk. Green is being incorporated into building codes at the local and state level. It can be complex as each city's standards are different. "In the future there may be federal mandates that existing buildings will have to adhere to," added Cohen. "Upgrading to green can anticipate these mandates and allow upgrades to occur on your terms."
- Pollution. Existing buildings are one of the biggest contributors to environmental pollution in the U.S., accounting for 40 percent of total energy use, 72 percent electricity consumption, 39 percent of the carbon dioxide emissions, and 13 percent of total water consumption, according to the EPA. "The risks are clear," said Stephen Bushnell, senior director of emerging industries at Fireman's Fund. "Buildings that are not energy efficient or green will not be able to compete for the best tenants. Any building can become greener, often without a major capital expenditure."

ix The Economics of Biophilia: Why Designing with Nature in Mind Makes Financial Sense Terrapin Bright Green 2012 p. 4.

APPENDIX D: LINKS TO ADDITIONAL INFORMATION

1. Information about the LEED (Leadership in Energy and Environmental Design) rating system
US Green Building Council's website on LEED:
<http://new.usgbc.org/leed>
2. Information about the "Red List" (building materials that should be prohibited)
Red List Building Materials Living Building Challenge of International Living Building Institute
http://en.wikipedia.org/wiki/Red_List_building_materials
<http://ilbi.org>
<http://sustainablebusinessoregon.com/articles/2012/09/living-buildings-red-list-aims-to.html?page=all>
3. Information about EnergyStar Portfolio Manager
http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager
4. Information about the Institute for Sustainable Infrastructure
<http://www.sustainableinfrastructure.org>
5. Information about International Green Construction Code (IgCC):
<http://www.iccsafe.org/cs/igcc/pages/default.aspx>
<http://www2.buildinggreen.com/blogs/international-green-construction-code-live-what-does-it-mean>

ADDENDIX E: VISUAL EXAMPLES

Note: The Gaming Commission specifically asked at the Forum on Design Excellence for Massachusetts Casinos for examples or illustrations of “regional” design (projects in New England whose design reflect the regional character of New England) and of “high-quality” design.

While there are many possible examples, we offer the following as a few examples of high quality “regional” design, sustainability, and/or community linkages, and of two downtown casinos in Portugal and Australia.

We would be happy to discuss with the Commission what other examples may exist or how the Commission might become more educated about these issues.



Tanglewood Ozawa Hall, Lenox (design by William Rawn Associates)



Shalin Liu performing arts center, Rockport, MA (design by Epstein Joslin Architects)



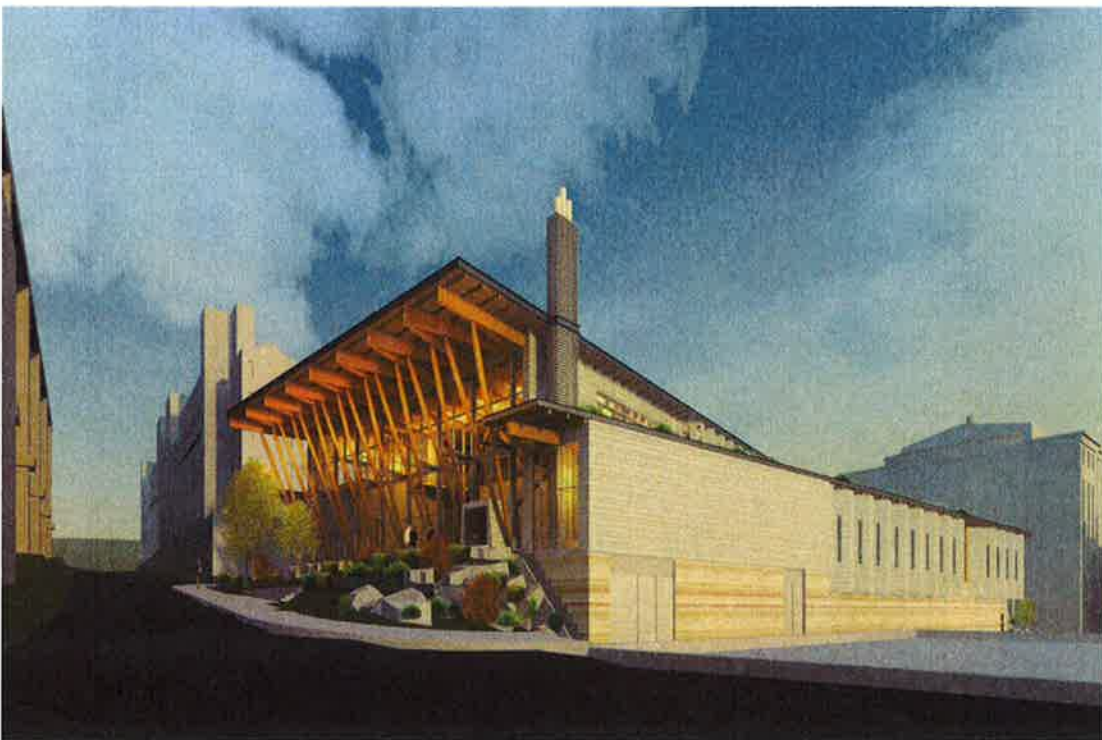
Children's Museum, Boston, MA (design by Cambridge Seven Associates)



Community Rowing Boathouse, Brighton, MA (design by Anmahian Winton Architects)



American Academy of Arts & Sciences, Cambridge, MA (design by Kallman McKinnell and Wood)



SUNY College of Environmental Science and Forestry Gateway Center, Syracuse, NY (design by Architerra)



High Line Park, New York City (design by Diller Scofidio + Renfro, with James Corner Field Operations)



Casino Lisboa, in downtown Lisbon, Portugal



Casino Lisboa, in downtown Lisbon, Portugal



Casino, in downtown Melbourne, Australia



Casino, in downtown Melbourne, Australia

