

US EPA ARCHIVE DOCUMENT

City of Springfield, Missouri Commercial Street Sustainability Pilot

Workshop Analysis and Outcomes

September 29, 2009



Completed by *Vita Nuova LLC*
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Prepared for:

U.S. Environmental Protection Agency
Office of Solid Waste and Emergency Response
Office of Brownfields and Land Revitalization
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Introduction

This report summarizes the June 25, 2009 workshop of the City of Springfield Sustainability Pilot for the Commercial Street Historic District.

The goal of the sustainable design workshop was to review and evaluate sustainable design and construction options for three Commercial Street projects.

The workshop followed a December 2008 site visit and meetings with EPA staff and consultants that inaugurated the Environmental Protection Agency (EPA) Sustainability Pilot: Commercial Street Historic District (**Ref. 1**). The workshop reviewed three building renovation projects and the sustainable design recommendations outlined in a March 2009 report (**Ref. 2**). The workshop format allowed each team to work with EPA consultants to fine-tune current design and construction (**Appendix A**). Briefings included updates on energy modeling and Leadership in Energy and Environmental Design (LEED) Ratings. An open-house evening meeting was also held for the public to visit and view the progress of work.

Workshop attendees:

C-Street Brewery team

Kris Frost, owner and construction manager
Buz Hosfield, owner
Christopher Swan, AIA, architect, Butler Rosenbury & Partners

Commercial Club team

Randy Dunlap, AIA, Municipal Facilities Superintendent, City of Springfield Department of Public Works
Louie Morrow, Municipal Facilities Supervisor, City of Springfield Department of Public Works
Christopher Swan, AIA, architect, Butler Rosenbury & Partners
Ron Walker, Commercial Club Board Vice President, property renovation, Cityscape Development LLC

Professional Massage Training Center and Day Spa team

Ben Jennings, P.E., structural engineer and partner, Butler Rosenbury & Partners
Rebecca Elliott, interior designer
Juliet Mee, owner and general contractor

Additional attendees

Camron Adibi, LEED AP, sustainable designer, Vita Nuova consultant to EPA
Brian M. Conrad, project manager, Environmental Works
Olivia Hough, Senior Planner/Brownfields Coordinator, City of Springfield
Alma Moreno-Lahm, Brownfields Project Manager, EPA Region 7
Susan A. Sciarratta, P.E., LEED AP, BRS Inc. consultant to EPA
Donald Watson, architect and planner, Vita Nuova consultant to EPA

Green Investment Value Engineering (GIVEtm) workshop and community meeting agenda

Goal of the GIVE workshop

To review and evaluate sustainable design and construction options for three Commercial Street projects, including “green value” engineering, LEED checklists, and energy modeling strategies.

DESIGN WORKSHOP

- 11:00 am Introductions
11:15 am Project Descriptions
Each team describes their project, status of design, estimated construction cost, and key questions.
12:30 pm Breakout Groups
Round-robin consults [individual consults with project teams for 20 minutes].
1:45 pm Mid-Afternoon Report
Questions and Answers
2:00 pm Teams Develop and Refine Design Concepts with Consultants
3:15 pm Teams Prepare Reports
3:30 pm “Showtime”
Teams present updated project schematics based on consults.
4:15 pm Workshop Summary and Recommended Follow-on Steps

COMMUNITY MEETING

- 5:30 pm Arrivals
Informal meet and greet and poster viewing.
6:00 pm Introductions and Showtime
Teams present projects.
6:45 pm Question and Answer Facilitated Discussion
7:30 pm Adjourn

Executive Summary

On June 25, 2009 three projects from EPA’s City of Springfield Sustainability Pilot took part in a sustainable design workshop and community meeting. This workshop and community meeting were held to further refine the project designs. The three projects are:

- Commercial Club: Renovation of a City-owned building.
- C-Street Brewery: Development of a brewery and adjoining retail space.
- Professional Massage Training Center and Day Spa: Rehabilitation of two buildings into a health and wellness massage center and spa.

The workshop included peer review for each of the projects and revealed synergies and areas for improvement. After the peer reviews, each project team listed the changes they expect to make to their plans as a result of the workshop. The owner of the Professional Massage Training Center and Day Spa, Juliet Mee, called the peer review “transformative.”

LEED checklists (**Appendices B and C**) were also prepared for two of the projects, C-Street Brewery and the Professional Massage Training Center and Day Spa. The preliminary checklists reveal that both projects have the possibility of receiving LEED Platinum Rating. A LEED checklist was not prepared for the Commercial Club because renovation planning for the building had not progressed far enough.

Workshop Summary

The workshop and community meeting provided professional review and stakeholder comment on three projects in the City of Springfield's Sustainability Pilot for the Commercial Street Historic District. The workshop allowed a wide range of discussion and options to be updated. These notes record selected highlights of presentations and comments before and after the round of peer consults.

LEED checklists (preliminary and based on current discussions of intent) are attached as appendices. These indicate that LEED certification is feasible for the C-Street Brewery and the Professional Massage Training Center and Day Spa. If certification of the brewery project is desired, registration and the certification process should begin immediately. The appropriateness of LEED certification for the Commercial Club project is conjectural because funds are not currently available for remodeling.

It will be helpful for the three project teams to continue to work collaboratively towards integrating design, engineering, and construction practices that can achieve a LEED Rating, whether or not actual certification of all the projects is pursued.

Commercial Club

The Commercial Club is a City-owned building. The City is stabilizing the structure (new roof and repointing of walls). Additional remediation and adaptive reuse requires further funding approvals for exterior envelope upgrading (insulation of walls, roof, and windows) and interior remodeling, including electric and heating, ventilation, and air conditioning (HVAC). Once authorized, a request for proposals for architectural and engineering services will be issued. The workshop discussion can assist in describing possible features to be incorporated in this future work.

BEFORE Peer Review:

- Randy Dunlap, architect, presented two use concepts currently being considered for the Commercial Club. The two concepts indicate different locations of fire stairs and services.
- For both concepts, the basement would have no occupancy and be used for storage and mechanical systems. The Police Department would occupy the first floor. The second floor would be a meeting room for community outreach (used part-time).
- The north side of the property is owned by the railroad and is not included in the renovations.
- The City of Springfield design team would like to install a green roof and a rainwater-harvesting tank in the basement. They would like to improve the insulation in the walls (with spray polyurethane foam and/or frame walls and fiberglass batts).
- There is an issue with refurbishing and/or replacing the windows because the building is historic. Further investigation is needed.
- Solar hot water on the roof and combined greenroofs with the day spa next door were also discussed.

AFTER peer review:

- Randy Dunlap confirmed that the City would like to take the following actions:
 1. Improve the roof and install a green roof on the streetside balcony as initially proposed in order to symbolize "greening".
 2. Add high R insulation under the roof (R-45) and inside exterior walls (R-20+) to allow HVAC cost reduction.
 3. Downsize to a smaller HVAC system with modular controls for different zones of use (meeting the American Society of Heating, Refrigerating and Air-Conditioning Engineers and LEED rating standards).

4. Improve windows with double glazing.
 5. Install daylight sensors for electric light control.
 6. Install a rainwater harvesting system/greywater reuse system (this is not confirmed but is of great interest).
- It is unlikely that an outdoor green screen would be feasible on the west (as proposed by the consultants). The property line runs along the western building edge; any additional overhang may be prohibited. Further, there is concern that plantings would attach to the brick and thus pose a long-term maintenance problem.
 - The design team was not aware that the day spa was located next door to the Commercial Club. They would like to create a shared greenscape with the day spa to capitalize on the adjacency.

C-Street Brewery

BEFORE peer review:

Owner Buz Hosfield presented the latest design. The design team is proposing to eliminate HVAC systems from the brewery production space (the larger half without skylights). They would like to install a motion-activated light system. Currently the owner is negotiating leasing the tenant space to a pub/eatery business that would use the brewery name.

Following suggestions made at the December 2008 visit of EPA consulting group, the design team has installed three south-facing daylighting clerestories in the retail area. Construction manager Kris Frost and architect Christopher Swan developed the window size and overhang for the clerestory to fully shade the clerestory glass in summer and to admit direct sunlight in winter. There is already an impressive amount of natural light reflected from the white surface “cool roof,” with 5-¼ inch rigid foam (R-25).

The team is also recycling and reusing brick, planks, the garage door, and the skylight frame. The original oak planks are being reset for the brewery space and the pub.

Additional plans may include installation of native landscaping with no permanent irrigation system. The owner said he priced out pervious pavement and it is double the cost of pouring concrete.

AFTER peer review:

- Buz Hosfield expressed that the design team will do the following:
 1. Consider adding interior insulation in the interior of the retail space, subject to fit-up discussions with the tenant.
 2. Install an Energy Management System (EMS) and light motion sensors.
 3. Relocate outdoor storage tanks from the rear yard to the front. These can serve as “icons” of the brewery and free up space in the rear, which is needed for additional parking.
 4. Consider reduction of hardscape (blacktop) and pursue options for porous paving for parking spaces (grass pavers or contained gravel). Gravel may not meet local code review if considered a source of air pollution (dust production).
 5. Address the consultant suggestion to install trees in drainage trenches for stormwater management and low impact development (suggested in March report).
- As a result of peer consult, the owner would consider using LEED Rating as a guide and potentially applying for certification. If certification is desired, it may be worthwhile to partner with the day spa. See **Appendix B** for a preliminary worksheet of the brewery’s LEED Rating.

Professional Massage Training Center and Day Spa

BEFORE peer review:

Owner Juliet Mee presented updates to her plans. The current operation and vision is a training center, with health and wellness as its overriding theme. She is also the owner and developer of the adjacent vacant building that will be remodeled. The building is approximately 4,700 square feet. Juliet Mee is sole proprietor of both businesses and will serve as the general contractor.

The goal is to join the two spaces by opening a shared interior wall. The structural engineer is with Butler Rosenbury & Partners. The HVAC installer is Spring Mountain Air. The team would like to receive LEED certification. The green roof concept has proven to be very costly because the current roof structure is “at its code limit.” Additional load requirements for the roof terrace and occupancy will require dismantling and replacing the entire roof structure. The owner estimates that with a green roof the construction costs will be approximately \$150 per square foot.

AFTER peer review:

Juliet Mee expressed the following:

1. The peer consult has been “transformative” in her planning because it provided ways to improve the internal plan and add a green gathering space (reception and waiting) and daylit corridor. These features will brand the location as a “green oasis” without having to rely upon a green roof terrace, as originally conceived. The design of the roof edge will incorporate a green trellis.
2. The budget and design simplification allows her plans to go forward on schedule and help achieve a high LEED Rating. If certification is desired, it may be of interest to partner with the C-Street Brewery above. See **Appendix C** for preliminary worksheet of the day spa’s LEED Rating.
3. The priority is to improve the envelope and use energy conservation measure throughout.
4. Goals include 100% daylighting for the interior space, premium air quality, and fostering community connectivity.
5. An effort will be made to use local/regional materials and reclaimed materials (lumber).

References

- Ref. 1 EPA Sustainability Pilot: Commercial Street Historic District
www.epa.gov/brownfields/sustain_plts/factsheets/com_st_spfs.pdf
- Ref. 2 Vita Nuova LLC
City of Springfield, Missouri Environmental Protection Agency Sustainability Pilot
“Recommendations for Sustainable Design and Adaptive Reuse: Commercial Street Historic District.”
March 20, 2009.
http://www.epa.gov/brownfields/sustain_plts/reports/springfield_fr.pdf

APPENDIX A: Sustainable Design Workshop

What is a sustainable design workshop?

A sustainable design workshop is a facilitated meeting of experts with design teams who have schematic design projects “on the boards.” The workshop provides expert advice to architectural design teams when the advice is most timely and effective, in the early schematic design phase of buildings and community plans. The advantages are:

- Consulting expertise is offered in a collaborative “shirt-sleeves” design team format (peer-to-peer, with time for give and take).
- Projects are far enough advanced in the schematic design so that program requirements, construction budget, and preliminary designs are defined, but not so far advanced that significant design alternations can not be considered.
- The process is a model of integrated design; the expertise of the entire range of specializations of architecture is considered simultaneously (rather than sequentially). An integrated design process is a recommendation of LEED Rating procedures.
- In a typical sustainable design workshop, three or more projects and project teams are addressed, allowing each team to contribute lessons learned to other participants.

What is the goal of a sustainable workshop?

The goal is to provide “green value engineering” to projects that will be built. Recommendations are presented early in the design phases so that budget opportunities are identified early on. This allows the recommendations to meet project goals, to reduce costs of construction and operation, and to avoid costly “rework,” which would otherwise be required. The workshop goals of cost and resource efficiency are defined from the outset. In most cases, construction costs are reduced by opportunities identified in the process. In addition, the process can help significantly increase life-cycle cost savings through energy and environmental design.

Who should participate in the workshop?

The integrated design team process works only when all significant specialties are represented. These may include the owner, architect, civil and structural engineer, landscape architect, mechanical engineer, electrical and controls engineer, special equipment (process) engineer, and construction specialist. The “construction specialist” does not have to be the contractor of the project, but should represent “constructability” and construction efficiencies expertise.

What is required of participating design teams prior to the workshop?

Each team brings the following to the workshop:

1. Current visual documentation to illustrate site location, site plan, and any preliminary schematics.
2. Preliminary program (space budget) and construction cost budget should be defined.
3. Local costs of energy, utilities, water, and sewerage.

Ideally, the schematic design phase is approximately 30% complete, sufficient to define design parameters, but not so far advanced that significant redirection and reconfiguration of the design is resisted or not possible without “rework.”

What is the right number of design team project participants? What are the room requirements and logistics?

The workshop should take place in a large room that offers plenty of space for each group to work around square tables with wall space to post work. A near ideal arrangement is 6' x 6' tables with an adjacent wall for posting work. Tables and chairs should be easily rearranged. Most of the work is represented by drawings and sketches by the design teams. When a community meeting is part of the program, the design

team should be prepared to present their projects in a poster format that can be clearly understood by public participants.

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APPENDIX B: Preliminary LEED Rating Worksheet, C-Street Brewery

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LEED 2009 for New Construction and Major Renovation

Project Checklist

Project Name: C Street Brewery

Date: June 2009

| | | | | |
|----|---|----|--------------------------|----------------------------|
| 14 | 1 | 11 | Sustainable Sites | Possible Points: 26 |
|----|---|----|--------------------------|----------------------------|

| Y | N | ? | | |
|---|---|---|--|---|
| | | | Prereq 1 Construction Activity Pollution Prevention | |
| 1 | | | Credit 1 Site Selection | 1 |
| 5 | | | Credit 2 Development Density and Community Connectivity | 5 |
| 1 | | | Credit 3 Brownfield Redevelopment | 1 |
| | | 6 | Credit 4.1 Alternative Transportation—Public Transportation Access | 6 |
| 1 | | | Credit 4.2 Alternative Transportation—Bicycle Storage and Changing Rooms | 1 |
| 3 | | | Credit 4.3 Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles | 3 |
| | | 2 | Credit 4.4 Alternative Transportation—Parking Capacity | 2 |
| 1 | | | Credit 5.1 Site Development—Protect or Restore Habitat | 1 |
| 1 | | | Credit 5.2 Site Development—Maximize Open Space | 1 |
| | | 1 | Credit 6.1 Stormwater Design—Quantity Control | 1 |
| | 1 | | Credit 6.2 Stormwater Design—Quality Control | 1 |
| | | 1 | Credit 7.1 Heat Island Effect—Non-roof | 1 |
| 1 | | | Credit 7.2 Heat Island Effect—Roof | 1 |
| | | 1 | Credit 8 Light Pollution Reduction | 1 |

| | | | | |
|---|---|---|-------------------------|----------------------------|
| 4 | 4 | 2 | Water Efficiency | Possible Points: 10 |
|---|---|---|-------------------------|----------------------------|

| Y | N | ? | | |
|---|---|---|--|--------|
| | | | Prereq 1 Water Use Reduction—20% Reduction | |
| 4 | | | Credit 1 Water Efficient Landscaping | 2 to 4 |
| | | | <input type="checkbox"/> Reduce by 50% | 2 |
| | | | <input checked="" type="checkbox"/> No Potable Water Use or Irrigation | 4 |
| | 2 | | Credit 2 Innovative Wastewater Technologies | 2 |
| | 2 | 2 | Credit 3 Water Use Reduction | 2 to 4 |
| | | | <input checked="" type="checkbox"/> Reduce by 30% | 2 |
| | | | <input type="checkbox"/> Reduce by 35% | 3 |
| | | | <input type="checkbox"/> Reduce by 40% | 4 |

| | | |
|----|----|---|
| 12 | 18 | 5 |
|----|----|---|

Energy and Atmosphere Possible Points: 35

| |
|---|
| Y |
| Y |
| Y |
| 5 |
| 9 |
| 5 |

- Prereq 1 Fundamental Commissioning of Building Energy Systems
- Prereq 2 Minimum Energy Performance
- Prereq 3 Fundamental Refrigerant Management

Credit 1 Optimize Energy Performance 1 to 19

- | | | |
|---|---|----|
| | Improve by 12% for New Buildings or 8% for Existing Building Renovations | 1 |
| | Improve by 14% for New Buildings or 10% for Existing Building Renovations | 2 |
| | Improve by 16% for New Buildings or 12% for Existing Building Renovations | 3 |
| | Improve by 18% for New Buildings or 14% for Existing Building Renovations | 4 |
| 5 | Improve by 20% for New Buildings or 16% for Existing Building Renovations | 5 |
| | Improve by 22% for New Buildings or 18% for Existing Building Renovations | 6 |
| | Improve by 24% for New Buildings or 20% for Existing Building Renovations | 7 |
| | Improve by 26% for New Buildings or 22% for Existing Building Renovations | 8 |
| | Improve by 28% for New Buildings or 24% for Existing Building Renovations | 9 |
| ? | Improve by 30% for New Buildings or 26% for Existing Building Renovations | 10 |
| | Improve by 32% for New Buildings or 28% for Existing Building Renovations | 11 |
| | Improve by 34% for New Buildings or 30% for Existing Building Renovations | 12 |
| | Improve by 36% for New Buildings or 32% for Existing Building Renovations | 13 |
| | Improve by 38% for New Buildings or 34% for Existing Building Renovations | 14 |
| | Improve by 40% for New Buildings or 36% for Existing Building Renovations | 15 |
| | Improve by 42% for New Buildings or 38% for Existing Building Renovations | 16 |
| | Improve by 44% for New Buildings or 40% for Existing Building Renovations | 17 |
| | Improve by 46% for New Buildings or 42% for Existing Building Renovations | 18 |
| | Improve by 48%+ for New Buildings or 44%+ for Existing Building Renovations | 19 |

| | | |
|--|---|--|
| | 7 | |
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Credit 2 On-Site Renewable Energy 1 to 7

- | | | |
|--|----------------------|---|
| | 1% Renewable Energy | 1 |
| | 3% Renewable Energy | 2 |
| | 5% Renewable Energy | 3 |
| | 7% Renewable Energy | 4 |
| | 9% Renewable Energy | 5 |
| | 11% Renewable Energy | 6 |
| | 13% Renewable Energy | 7 |

| | | |
|---|--|--|
| 2 | | |
|---|--|--|

Credit 3 Enhanced Commissioning 2

| | | |
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| | 2 | |
|--|---|--|

Credit 4 Enhanced Refrigerant Management 2

| | | |
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| 3 | | |
|---|--|--|

Credit 5 Measurement and Verification 3

| | | |
|---|--|--|
| 2 | | |
|---|--|--|

Credit 6 Green Power 2

| | | | | |
|---|---|---|--------------------------------|----------------------------|
| 5 | 5 | 4 | Materials and Resources | Possible Points: 14 |
|---|---|---|--------------------------------|----------------------------|

| | | | | | | |
|---|---|---|---|------------|---|--------|
| Y | | | | Prereq 1 | Storage and Collection of Recyclables | |
| 1 | 1 | 1 | | Credit 1.1 | Building Reuse—Maintain Existing Walls, Floors, and Roof | 1 to 3 |
| | | | 1 | | Reuse 55% | 1 |
| | | | ? | | Reuse 75% | 2 |
| | | | 1 | | Reuse 95% | 3 |
| 1 | | | | Credit 1.2 | Building Reuse—Maintain 50% of Interior Non-Structural Elements | 1 |
| 1 | 1 | 1 | | Credit 2 | Construction Waste Management | 1 to 2 |
| | | | ? | | 50% Recycled or Salvaged | 1 |
| | | | 1 | | 75% Recycled or Salvaged | 2 |
| 2 | | | | Credit 3 | Materials Reuse | 1 to 2 |
| | | | 1 | | Reuse 5% | 1 |
| | | | 2 | | Reuse 10% | 2 |
| 1 | 1 | 1 | | Credit 4 | Recycled Content | 1 to 2 |
| | | | ? | | 10% of Content | 1 |
| | | | 1 | | 20% of Content | 2 |
| 1 | 1 | | | Credit 5 | Regional Materials | 1 to 2 |
| | | | 1 | | 10% of Materials | 1 |
| | | | 1 | | 20% of Materials | 2 |
| | 1 | | | Credit 6 | Rapidly Renewable Materials | 1 |
| | | | 1 | Credit 7 | Certified Wood | 1 |

| | | | | |
|----|---|---|-------------------------------------|----------------------------|
| 12 | 1 | 2 | Indoor Environmental Quality | Possible Points: 15 |
|----|---|---|-------------------------------------|----------------------------|

| | | | | | | |
|---|---|--|---|------------|--|---|
| Y | | | | Prereq 1 | Minimum Indoor Air Quality Performance | |
| Y | | | | Prereq 2 | Environmental Tobacco Smoke (ETS) Control | |
| | | | 1 | Credit 1 | Outdoor Air Delivery Monitoring | 1 |
| 1 | | | | Credit 2 | Increased Ventilation | 1 |
| 1 | | | | Credit 3.1 | Construction IAQ Management Plan—During Construction | 1 |
| 1 | | | | Credit 3.2 | Construction IAQ Management Plan—Before Occupancy | 1 |
| 1 | | | | Credit 4.1 | Low-Emitting Materials—Adhesives and Sealants | 1 |
| 1 | | | | Credit 4.2 | Low-Emitting Materials—Paints and Coatings | 1 |
| 1 | | | | Credit 4.3 | Low-Emitting Materials—Flooring Systems | 1 |
| 1 | | | | Credit 4.4 | Low-Emitting Materials—Composite Wood and Agrifiber Products | 1 |
| | 1 | | | Credit 5 | Indoor Chemical and Pollutant Source Control | 1 |
| 1 | | | | Credit 6.1 | Controllability of Systems—Lighting | 1 |
| 1 | | | | Credit 6.2 | Controllability of Systems—Thermal Comfort | 1 |
| 1 | | | | Credit 7.1 | Thermal Comfort—Design | 1 |
| 1 | | | | Credit 7.2 | Thermal Comfort—Verification | 1 |
| 1 | | | | Credit 8.1 | Daylight and Views—Daylight | 1 |
| | | | 1 | Credit 8.2 | Daylight and Views—Views | 1 |

| | | | | |
|---|---|---|--------------------------------------|---------------------------|
| 1 | 2 | 3 | Innovation and Design Process | Possible Points: 6 |
|---|---|---|--------------------------------------|---------------------------|

| | | | | |
|---|---|---|--|---|
| | | 1 | Credit 1.1 Innovation in Design: Process Water Reuse or Energy Capture | 1 |
| | | 1 | Credit 1.2 Innovation in Design: Reuse of spent grains, bottles, etc | 1 |
| | | 1 | Credit 1.3 Innovation in Design: Connectivity via Historic Footbridge | 1 |
| | 1 | | Credit 1.4 Innovation in Design: Specific Title | 1 |
| | 1 | | Credit 1.5 Innovation in Design: Specific Title | 1 |
| 1 | | | Credit 2 LEED Accredited Professional | 1 |

| | | | | |
|---|---|---|----------------------------------|---------------------------|
| 2 | 2 | 0 | Regional Priority Credits | Possible Points: 4 |
|---|---|---|----------------------------------|---------------------------|

| | | | | |
|---|---|--|---|---|
| 1 | | | Credit 1.1 Regional Priority: Specific Credit Site Selection C1 | 1 |
| 1 | | | Credit 1.2 Regional Priority: Specific Credit Site Selection C5.1 | 1 |
| | 1 | | Credit 1.3 Regional Priority: Specific Credit | 1 |
| | 1 | | Credit 1.4 Regional Priority: Specific Credit | 1 |

| | | | | |
|----|----|----|--------------|-----------------------------|
| 50 | 33 | 27 | Total | Possible Points: 110 |
|----|----|----|--------------|-----------------------------|

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

APPENDIX C: Preliminary LEED Rating Worksheet, Professional Massage Training Center and Day Spa

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LEED 2009 for New Construction and Major Renovation

Project Checklist

Project Name: Professional Massage Training Center

Date: June 2009

| | | | | |
|----|---|---|--------------------------|----------------------------|
| 23 | 1 | 2 | Sustainable Sites | Possible Points: 26 |
|----|---|---|--------------------------|----------------------------|

| Y | N | ? | | |
|---|---|---|--|---|
| | | | Prereq 1 Construction Activity Pollution Prevention | |
| 1 | | | Credit 1 Site Selection | 1 |
| 5 | | | Credit 2 Development Density and Community Connectivity | 5 |
| 1 | | | Credit 3 Brownfield Redevelopment | 1 |
| 6 | | | Credit 4.1 Alternative Transportation—Public Transportation Access | 6 |
| 1 | | | Credit 4.2 Alternative Transportation—Bicycle Storage and Changing Rooms | 1 |
| 3 | | | Credit 4.3 Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles | 3 |
| 2 | | | Credit 4.4 Alternative Transportation—Parking Capacity | 2 |
| | | 1 | Credit 5.1 Site Development—Protect or Restore Habitat | 1 |
| | | 1 | Credit 5.2 Site Development—Maximize Open Space | 1 |
| 1 | | | Credit 6.1 Stormwater Design—Quantity Control | 1 |
| | 1 | | Credit 6.2 Stormwater Design—Quality Control | 1 |
| 1 | | | Credit 7.1 Heat Island Effect—Non-roof | 1 |
| 1 | | | Credit 7.2 Heat Island Effect—Roof | 1 |
| 1 | | | Credit 8 Light Pollution Reduction | 1 |

| | | | | |
|---|---|---|-------------------------|----------------------------|
| 6 | 0 | 4 | Water Efficiency | Possible Points: 10 |
|---|---|---|-------------------------|----------------------------|

| Y | N | ? | | |
|---|---|---|---|--------|
| | | | Prereq 1 Water Use Reduction—20% Reduction | |
| 4 | | | Credit 1 Water Efficient Landscaping | 2 to 4 |
| | | | <input type="checkbox"/> Reduce by 50% | 2 |
| | | | <input style="text-align: center;" type="checkbox"/> 4 No Potable Water Use or Irrigation | 4 |
| | | 2 | Credit 2 Innovative Wastewater Technologies | 2 |
| 2 | | 2 | Credit 3 Water Use Reduction | 2 to 4 |
| | | | <input style="text-align: center;" type="checkbox"/> 2 Reduce by 30% | 2 |
| | | | <input type="checkbox"/> Reduce by 35% | 3 |
| | | | <input style="text-align: center;" type="checkbox"/> ? Reduce by 40% | 4 |

15 17 3 Energy and Atmosphere Possible Points: 35

| | | | |
|---|----------|---|--|
| Y | Prereq 1 | Fundamental Commissioning of Building Energy Systems | |
| Y | Prereq 2 | Minimum Energy Performance | |
| Y | Prereq 3 | Fundamental Refrigerant Management | |
| 3 | 14 | 2 | Credit 1 Optimize Energy Performance 1 to 19 |
| | | Improve by 12% for New Buildings or 8% for Existing Building Renovations | 1 |
| | | Improve by 14% for New Buildings or 10% for Existing Building Renovations | 2 |
| 3 | | Improve by 16% for New Buildings or 12% for Existing Building Renovations | 3 |
| | | Improve by 18% for New Buildings or 14% for Existing Building Renovations | 4 |
| ? | | Improve by 20% for New Buildings or 16% for Existing Building Renovations | 5 |
| | | Improve by 22% for New Buildings or 18% for Existing Building Renovations | 6 |
| | | Improve by 24% for New Buildings or 20% for Existing Building Renovations | 7 |
| | | Improve by 26% for New Buildings or 22% for Existing Building Renovations | 8 |
| | | Improve by 28% for New Buildings or 24% for Existing Building Renovations | 9 |
| | | Improve by 30% for New Buildings or 26% for Existing Building Renovations | 10 |
| | | Improve by 32% for New Buildings or 28% for Existing Building Renovations | 11 |
| | | Improve by 34% for New Buildings or 30% for Existing Building Renovations | 12 |
| | | Improve by 36% for New Buildings or 32% for Existing Building Renovations | 13 |
| | | Improve by 38% for New Buildings or 34% for Existing Building Renovations | 14 |
| | | Improve by 40% for New Buildings or 36% for Existing Building Renovations | 15 |
| | | Improve by 42% for New Buildings or 38% for Existing Building Renovations | 16 |
| | | Improve by 44% for New Buildings or 40% for Existing Building Renovations | 17 |
| | | Improve by 46% for New Buildings or 42% for Existing Building Renovations | 18 |
| | | Improve by 48%+ for New Buildings or 44%+ for Existing Building Renovations | 19 |
| 3 | 3 | 1 | Credit 2 On-Site Renewable Energy 1 to 7 |
| | | 1% Renewable Energy | 1 |
| | | 3% Renewable Energy | 2 |
| 3 | | 5% Renewable Energy | 3 |
| ? | | 7% Renewable Energy | 4 |
| | | 9% Renewable Energy | 5 |
| | | 11% Renewable Energy | 6 |
| | | 13% Renewable Energy | 7 |
| 2 | | | Credit 3 Enhanced Commissioning 2 |
| 2 | | | Credit 4 Enhanced Refrigerant Management 2 |
| 3 | | | Credit 5 Measurement and Verification 3 |
| 2 | | | Credit 6 Green Power 2 |

7 2 5 **Materials and Resources** Possible Points: 14

| | | | | | |
|---|---|---|------------|---|--------|
| Y | | | Prereq 1 | Storage and Collection of Recyclables | |
| 2 | 1 | | Credit 1.1 | Building Reuse—Maintain Existing Walls, Floors, and Roof | 1 to 3 |
| | | | | Reuse 55% | 1 |
| | | | | Reuse 75% | 2 |
| | | | | Reuse 95% | 3 |
| | | 1 | Credit 1.2 | Building Reuse—Maintain 50% of Interior Non-Structural Elements | 1 |
| 1 | | 1 | Credit 2 | Construction Waste Management | 1 to 2 |
| | | | | 50% Recycled or Salvaged | 1 |
| | | | | 75% Recycled or Salvaged | 2 |
| 2 | | | Credit 3 | Materials Reuse | 1 to 2 |
| | | | | Reuse 5% | 1 |
| | | | | Reuse 10% | 2 |
| 1 | | 1 | Credit 4 | Recycled Content | 1 to 2 |
| | | | | 10% of Content | 1 |
| | | | | 20% of Content | 2 |
| | 1 | 1 | Credit 5 | Regional Materials | 1 to 2 |
| | | | | 10% of Materials | 1 |
| | | | | 20% of Materials | 2 |
| | | 1 | Credit 6 | Rapidly Renewable Materials | 1 |
| 1 | | | Credit 7 | Certified Wood | 1 |

10 0 5 **Indoor Environmental Quality** Possible Points: 15

| | | | | | |
|---|--|---|------------|--|---|
| Y | | | Prereq 1 | Minimum Indoor Air Quality Performance | |
| Y | | | Prereq 2 | Environmental Tobacco Smoke (ETS) Control | |
| | | 1 | Credit 1 | Outdoor Air Delivery Monitoring | 1 |
| | | 1 | Credit 2 | Increased Ventilation | 1 |
| 1 | | | Credit 3.1 | Construction IAQ Management Plan—During Construction | 1 |
| 1 | | | Credit 3.2 | Construction IAQ Management Plan—Before Occupancy | 1 |
| 1 | | | Credit 4.1 | Low-Emitting Materials—Adhesives and Sealants | 1 |
| 1 | | | Credit 4.2 | Low-Emitting Materials—Paints and Coatings | 1 |
| 1 | | | Credit 4.3 | Low-Emitting Materials—Flooring Systems | 1 |
| 1 | | | Credit 4.4 | Low-Emitting Materials—Composite Wood and Agrifiber Products | 1 |
| | | 1 | Credit 5 | Indoor Chemical and Pollutant Source Control | 1 |
| 1 | | | Credit 6.1 | Controllability of Systems—Lighting | 1 |
| 1 | | | Credit 6.2 | Controllability of Systems—Thermal Comfort | 1 |
| 1 | | | Credit 7.1 | Thermal Comfort—Design | 1 |
| 1 | | | Credit 7.2 | Thermal Comfort—Verification | 1 |
| | | 1 | Credit 8.1 | Daylight and Views—Daylight | 1 |
| | | 1 | Credit 8.2 | Daylight and Views—Views | 1 |

| | | | | |
|---|---|---|--------------------------------------|---------------------------|
| 1 | 0 | 5 | Innovation and Design Process | Possible Points: 6 |
|---|---|---|--------------------------------------|---------------------------|

| | | | | |
|---|--|---|--|---|
| | | 1 | Credit 1.1 Innovation in Design: Process Water Reduction and/or energy capture | 1 |
| | | 1 | Credit 1.2 Innovation in Design: Incorporate green spa design elements into curriculum | 1 |
| | | 1 | Credit 1.3 Innovation in Design: Connectivity via Historic Footbridge | 1 |
| | | 1 | Credit 1.4 Innovation in Design: Indoor landscaping for increased air quality | 1 |
| | | 1 | Credit 1.5 Innovation in Design: Noise reduction measures | 1 |
| 1 | | | Credit 2 LEED Accredited Professional | 1 |

| | | | | |
|---|---|---|----------------------------------|---------------------------|
| 1 | 0 | 3 | Regional Priority Credits | Possible Points: 4 |
|---|---|---|----------------------------------|---------------------------|

| | | | | |
|---|--|---|---|---|
| 1 | | | Credit 1.1 Regional Priority: Specific Credit Site Selection C1 | 1 |
| | | 1 | Credit 1.2 Regional Priority: Specific Credit Site Selection C5.1 | 1 |
| | | 1 | Credit 1.3 Regional Priority: Energy and Atmosphere C.2 at 7% (Solar hot water) | 1 |
| | | 1 | Credit 1.4 Regional Priority: Materials and Resources C.2 at 75% | 1 |

| | | | | |
|----|----|----|--------------|-----------------------------|
| 63 | 20 | 27 | Total | Possible Points: 110 |
|----|----|----|--------------|-----------------------------|

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110