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TO: Senate Committee on Utilities

FROM: Hans Nettelblad, AIA, LEED™ AP

RE: High Performance Buildings and the "Triple Bottom Line"

Good Morning Chairman Emler and Members of the Committee, I am Hans Nettelblad, of BNIM Architects and I serve on the Board of Directors for the American Institute of Architects in Kansas. I am here on behalf of the AIA Kansas to introduce the Committee to high-performance building design and the "Triple Bottom Line – a methodology of "accounting" which balances the social (people), environmental (planet), and economic (prosperity) impacts of our design decisions.

AIA Kansas is a statewide association of architects and intern architects. Most of our 700 members work in over 120 private practice architectural firms designing a variety of project types for both public and private clients. The rest of our members work in industry, government, and education where many manage the facilities of their employers and hire private practice firms to design new buildings or to renovate/remodel existing buildings.

We recently made a presentation to the House Committee on Energy and Utilities regarding HB2036 and, based on what we see in that particular bill and in Senate Bill SB120, AIA Kansas believes there is an immediate need to strengthen the State of Kansas' commitment to sustainable design and, more specifically, high-performance buildings.

Sustainable design is a holistic design and decision-making process which considers all three elements of the triple bottom line equally and concurrently when designing a high-performance building, community, or landscape. The health and productivity of the user, the impact on our natural resources and environment, and the distinct and quantifiable fiscal advantages resulting from this balanced approach are interdependent from the beginning of the design process, and continuing on through the lifetime operation of the building. Focusing on any one of the three aspects comes at the detriment of the others, and, consequently, either the people, the planet, or our prosperity are negatively impacted.

A simple illustration – choosing a less efficient mechanical (heating, ventilation and air-conditioning) system in order to save "first-cost" construction dollars impacts life-cycle costs in several ways – increased energy usage costs, decreased user productivity and increased worker absenteeism due to discomfort and illness, and increased air pollutants. These often unforeseen fiscal costs over the life of the building to the owner, and natural costs to user health and environment far exceed the monetary savings initially realized at the outset of the project. This is just one very basic example of something that could be solved through the course of the collaborative, integrated sustainable design approach

required for high-performance buildings. Our intent moreover is to emphasize to you the vast importance of high-performance building legislation, as it relates to the life cycle considerations of **all** building types – residential, commercial, industrial, retail, and governmental – **all** ultimately paid for by the residents of Kansas.

This type of legislation is certainly not new - some examples of design standards already in place by other government agencies: the General Services Administration, 12 states (Arizona, California, Connecticut, Colorado, Hawaii, Maine, Michigan, Nevada, New Mexico, Rhode Island, Washington, and Wisconsin) and more than 20 major cities have adopted the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED™) series of guidelines as their high performance building standard. In addition, about a month ago the District of Columbia established that all private development meet the USGBC LEED™ design standards.

With particular regard to "first-cost" concerns – studies indicate that achieving high-performance standards such as LEED™ are showing little to no premium. In *"The Costs and Financial Benefits of Green Buildings"*, 2003, Greg Kats, Capital E (www.cap-e.com) data on 33 LEED™ buildings built in California revealed an average first cost premium of 1.84%. In *"Costing Green: A Comprehensive Cost Database and Budgeting Methodology"*, 2004, Lisa Fay Matthiessen, Peter Morris, Davis Langdon data revealed certain market rate buildings did not target the LEED™ standard, but met it unknowingly. "The David and Lucile Packard Foundation Building For Sustainability Matrix", 2002 by BNIM Architects shows that high-performance building is the best social, economic and environmental design approach; this would especially hold true for a long-term owner such as the State of Kansas.

Last year the state of Missouri's new Lewis and Clark State Office building received a LEED™ Platinum Certification, the highest certification level available. It was completed on an construction budget which was appropriated seven years prior to project start, but the building was still designed and operates 50% more efficiently than the baseline energy code. This building is but a singular example of what could also be readily achievable in the State of Kansas. However, this is only one project - its impact alone is microscopic when compared to the effect mandatory legislation imposed on **all** building design and construction would otherwise have on the health and economy of our citizens and State - and as already illustrated in the presentation, other states have already recognized the importance of this issue and passed the necessary legislation to begin addressing this ordeal.

With specific regard to electricity, buildings make-up 76% of all electrical energy consumption in the United States; therefore, targeting efficiency of new buildings stands to make a significant impact on the triple-bottom line. One example - maximizing natural daylighting in a building not only reduces the energy required to power artificial lighting, but also contributes greatly to the performance and production of the building user. Abundant research has been conducted solely on the positive effects of daylighting in both office buildings and schools. Several case studies published by the Heschong Mahone Group, Inc. (www.h-m-g-com) and the Greening Schools Project (www.greeningschools.org) provide detailed, quantified data substantiating this one

sustainable design technique. Environmentally, every kilowatt-hour saved in our region will have an impact in reducing green house gas emissions - of the ten Environmental

Protection Agency Emission Regions, ours emits the second most Carbon Dioxide and the most Nitrogen Oxide. Likewise with existing buildings, requiring greater efficiency for renovations and upgrades would also have similar if not greater outcomes, given the frequency owners and agencies opt to renovate buildings they currently own, rather than assuming the greater costs of building anew.

Beyond daylighting in our office buildings and schools, further studies have indicated high-performance buildings contribute to earlier discharge in hospitals, increased productivity in factories, and increased sales/s.f. in retail spaces. It is therefore not surprising we see an increase in USGBC membership (LEED Certification), especially when taking into account the financial performance statistics of LEED companies as compared to other typical publicly-traded companies.

In addition to electricity, other resources are utilized heavily through the design, construction and operation of buildings that require abundant energy consumption. Just a few are delivering reliable potable water, providing end users transportation to and from the building, and the many processes involved in harvesting, manufacturing and installing products. Again, a comprehensive high performance building standard will provide significant reductions in the use of these other natural resources, non-renewable energy sources, waste production, and promote regeneration of natural resources. We propose that such a standard should also require documentation of the measurable contributions towards resource use reduction, in order to monitor and record data for future development.

Universally, based on the vast amount of research conducted and data compiled to date, we as architects (and, unfortunately, significant contributors to this dilemma), are striving to help establish a level of design which altogether maximizes both the human potential and economic vitality of our built environment, while concurrently sustaining the natural environment. A few days ago, the Intergovernmental Panel on Climate Change (IPCC) released “Climate Change 2007: The Physical Science Basis – Summary for Policymakers”, its fourth assessment of human activity and the consequent environmental impacts, further substantiating the need for a significant change in our way of thinking, building, and living (www.ipcc.ch).

In response, AIA Kansas wants to work with your Committee and the State of Kansas in adopting not only a comprehensive high-performance building standard, but also potential future legislation which reaches even farther beyond these milestones, in the same spirit as the AIA 2030 Challenge initiative towards carbon-neutral buildings. As a follow-up to this introduction, the AIA Kansas will prepare draft legislation ready for your input and consideration later in the year. Thank you for allowing us the opportunity to make this presentation - I will be happy to answer any questions you may have.