T1.2: AIA Conference on Sustainability in Architecture and Higher Education

Collaborative/Interdisciplinary Design Studio

A model should be developed for teaching integrated and realistic design skills in undergraduate and graduate design schools; the model should embody holistic sustainable thinking and design.

Graduates should be prepared to lead and participate in integrated/collaborative/interdisciplinary design practice yielding architecture that achieves the AIA’s 2030 goals.

Current Status

The group recognizes that traditional design school curriculum and teaching practices are not supportive of the educational models needed to prepare graduate architects to address the issues of sustainable and integrated design. There are issues of content that can be attributed to an inadequate understanding of the science of environments, buildings, human occupancy, economics, construction technology, and the general lack of research in the area of architecture that is shared amongst the profession.

The second major area of concern is lack of agreement within the professorial community regarding curriculum. There is little agreement concerning the responsibility of schools to teach sustainability. The deeply rooted belief that the primary focus of education should be formal issues of design can lead to the mistaken perception that design is in conflict with sustainability. In addition there is often little agreement on the priorities of design education and even the basic principles and tenants of sustainability to be taught. Education should provide an integrated and collaborative experience and skills to architecture students and better prepare them for professional life.

Practice provides a collaborative experience that includes client, architect, consultants, builder, and others in a multidisciplinary activity that ultimately shapes architecture. Architecture must provide a strong foundation for leading the efforts of these kinds of collaborations. Clients and the public expect architects to lead the collaborative effort required for sustainable design. The issues facing future architects and designers are larger than buildings. Our communities need help resolving the interconnected issues of the environment, social justice, building technology, urban design, transportation, energy, water, clean air, and other pressing world issues. Architects, who are skilled at working in collaborative interdisciplinary efforts, are well-suited to creatively address and solve these concerns through the design of future buildings and communities.

First Principles—Architecture, Urbanism, and Sustainability

Sustainability leaders adopted the idea of the triple bottom line—people, planet, and prosperity. There are numerous interpretations of how this idea is used but the universal concept is that sustainable practices have a positive impact on the planet, all people and the economy of the project or community. The group suggests that a parallel triple bottom line exists for architects based on the principles of architecture, urbanism, and sustainability. Architects should contribute to great buildings and inspiring architecture—our work should move the soul. We also have equal responsibility to use our buildings to shape a beautiful and energetic public realm in a meaningful way that has sustaining positive impact on the urban environment. Sustainability is a fundamental principle of responsible design and a natural component of our best architecture. We need to articulate the principles of sustainable design to provide a common ground to inspire and inform design education.

Model for Teaching—Integrated/ Collaborative/Interdisciplinary Practice

In practice architects have a role of guiding public policy through the work of projects and public involvement. Architects are looked upon to lead efforts involving professionals that reach well beyond traditional design and construction disciplines. That experience is rarely part of university or design school curriculum.

We propose that architecture departments create interdisciplinary programs with participants—faculty or students from other colleges and departments. The diagram includes public health, science, planning, law, business, humanities, liberal arts, sciences, and engineering. Depending upon the project issues disciplines would be invited
Team 3
From First Principles to Interdisciplinary Collaboration (continued)

to participate in all aspects of the project. Architecture students will experience one integrated/collaborative/interdisciplinary studio during their professional studies. The studio will be highly collaborative and provide students with experiences that closely parallel professional practice situations likely to be encountered by graduates.

Graduate architects will leave school with a clearer understanding and skills for leading projects and shaping public policy. Participating schools will realize similar benefits for students and faculty and have a clearer understanding and respect for the role of architects in addressing issues beyond building. The university will benefit through the overall experience of colleges collaborating on community issues and preparing students to better solve the issues of the future.

NAAB Criteria
In addition to the long-term initiatives proposed above, the group also suggests three immediate revisions that could be implemented concerning the National Architectural Accreditation Board (NAAB) criteria:

>Criteria 28: demonstrate that the comprehensive project criterion meaningfully addresses sustainability, including interdisciplinary and urban sustainability issues

>Criteria 15: clarify the sustainable design criterion to include first principles and performance standards and metrics

>Criteria 34: add sustainability to the ethics and professional judgment criterion

Team 3
A Proposed Model Toward Sustainability

We started off by stating a few thoughts on the future of the practice of architecture and moving toward sustainability:

Conventional education and practice will die off; thus we need to prepare lateral thinkers who can move to unconventional professions and careers. In other words, we need to develop agile thinkers, and graduates must be thinkers and practitioners. We must somehow move these ideas into the public realm.

We continued by clarifying what basic goals the curriculum should address:

>Encouraging the development of a strong sense of ethics among students as they move through their education.

>Assisting students in appreciating the important leadership role they may be able to play in addressing significant environmental challenges. This would include developing skill to interact with public.

>Encouraging students to develop a broad-based knowledge to enhance their capacity to facilitate in an integrated design process, e.g., charrettes, including the option of directly training in facilitation leadership skills. The integrated design process exercises could vary among a wide range of models and themes from emergency shelter exercises to sustainable community planning and from schematic-design building simulation to postoccupancy evaluations.

Reducing all core courses to 9 or 10 weeks instead of 14 or 15 weeks. Professors of core courses would then work with parallel studio professors to directly connect their core course subject matter to the studio design problem in some fashion for the remaining third of the semester. The parallel could be considered co-op work programs within bachelor and master programs. It is critical that all faculty work toward encouraging the multidisciplinary skills and expertise the students will require to tackle climate change in as comprehensive a fashion as possible.

Integrating, through studio design experiences, all of the above and including large-scale parametric analysis (ecological footprint, GHG analysis, socio-economic and sociocultural indicators).

The five summary themes borrowed from the Holcim Awards program can be used to evaluate the depth of sustainability within each core course and design studio exercise.

Quantum Change and Transferability

The project must demonstrate innovation at the forefront of sustainable construction—a quantum leap in comparison to conventional procedures. Breakthroughs and trend-setting approaches must be transferable and applicable to other construction projects:

>Contributions to the disciplines of architecture, urban and landscape design, civil, urban and environmental engineering and other related fields pertaining to construction

>Adherence to ethical standards in all phases of the project's lifecycle

>Contributions to the formation of socially viable environments and the values of communities

>Participation of stakeholders (clients, users, neighborhood, local authorities, nongovernmental organizations and others)

>Quality of working conditions in the suppliers' workshop, on site and during operation (compensation, safety, basic needs, gender issues)

>Political transparency and correctness

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