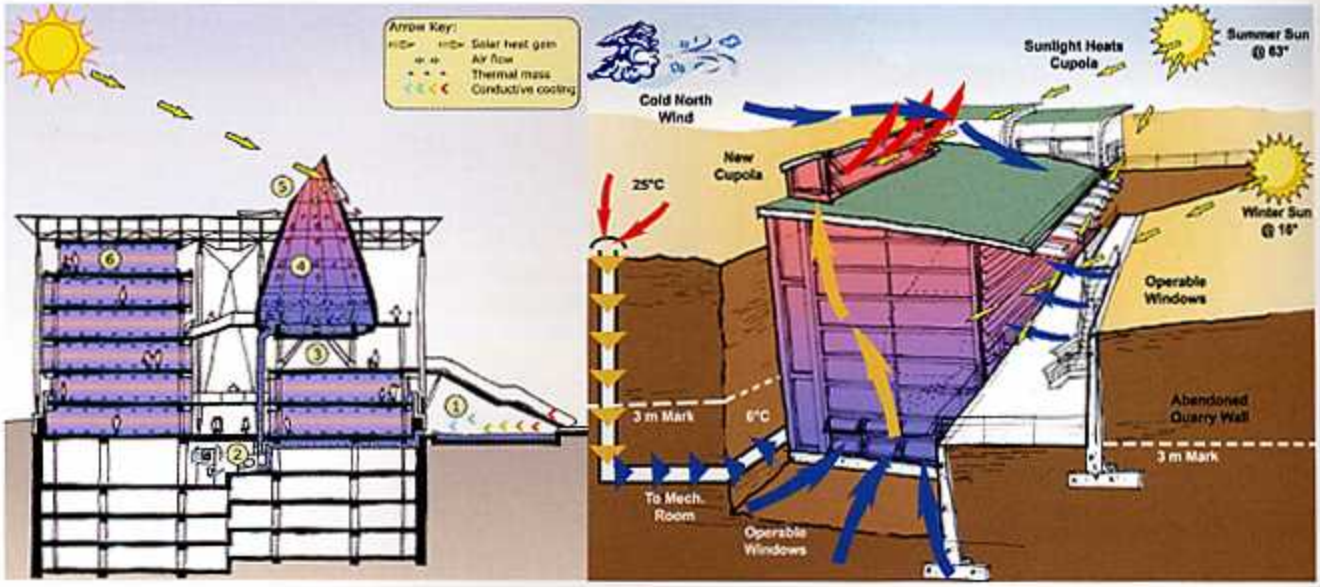
A University of Calgary studio explores new approaches to greening the curriculum in our schools of architecture.

Greening the Studio

by Barry Johns



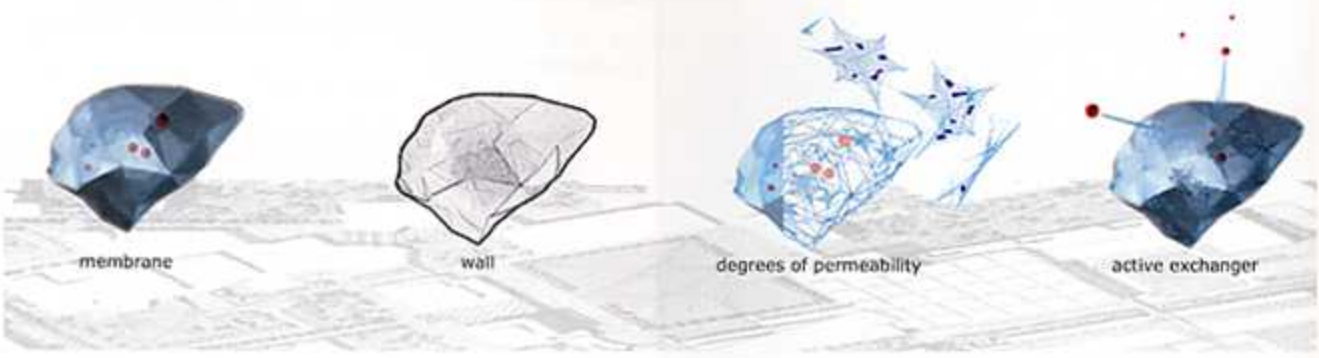
A design studio conducted in the spring semester of 2002 at the University of Calgary sought to integrate what were for the most part two parallel processes in the curriculum: the factual knowledge base of the building science courses and the imaginative exuberance of the studios. The studio sought to eschew sustainability as a technological addendum to a tectonic agenda. Sustainability in this context is not an adjunct to the architectural idea—it *is* the architectural idea.

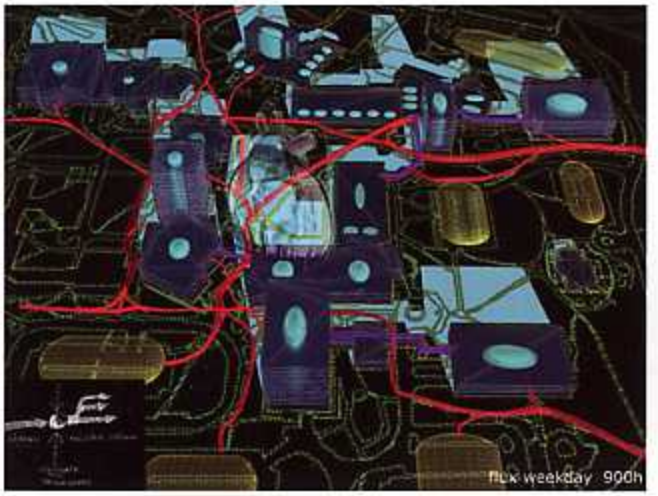
To begin to explore this concept, a precedent study examined examples of architecture in which the sustainable aspects of the building and the overall architectural expression appear enmeshed in each other. The task was for groups of two or three students to utilize the LEED (Leadership in Energy and Environmental Design) criteria as a centrifuge, to see how or if the elements of siting, building systems, and architectural expression could be separated from each other. Through this exercise the students were to reflect on the applicability of the precedent to the climate of the Canadian prairie and on the possibilities for his or her own work in this context. This information was compiled and presented by the class as a cohesive research document.

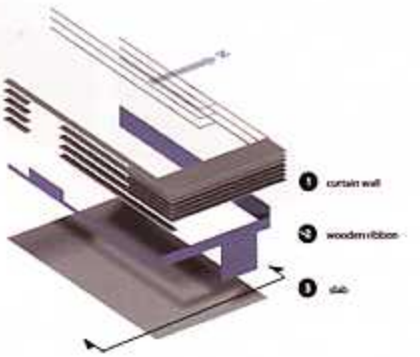
A position was taken that sustainability offers potential for beautiful buildings, existing within and even because of technocratic criteria such as LEED. With this understanding, a specific site, program, and client were introduced. Each student was to conceptualize an "Information Commons" for the University of Calgary Campus, a real and future project, its siting and functional requirements consistent with those outlined in the Campus Community Plan as well as the ideas brought forward in consultation with Dr. Frits Pannekoek, head of the Information Services Department, and Linda Fraser, head of the Canadian Architectural Archives. The design process was guided through a linear progression with each stage becoming more specific and larger in scale, starting with quantitative and qualitative site analysis, through to schematic and design development, and culminating in the generation of a construction detail. At each stage the students were evaluated on their capacity for place-making through an immediate and highly attenuated response to site and climate.

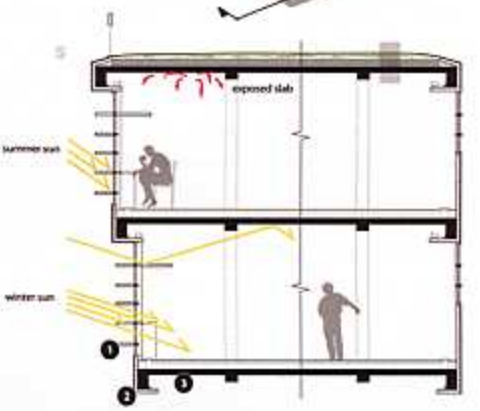
Above left: a precedent analysis by students Owen Craig and John van Hemert of the Tribunal de Grande Instance, Bordeaux, by Richard Rogers Partnership. Above: a precedent study of Prairie Research Station, with suggested design modifications by Owen Craig. Below: The Quad as Cellular Membrane, a site analysis on the University of Calgary campus by John van Hemert.

By way of illustration, John van Hemert's project considered the role of the Information Commons within the campus through a biological





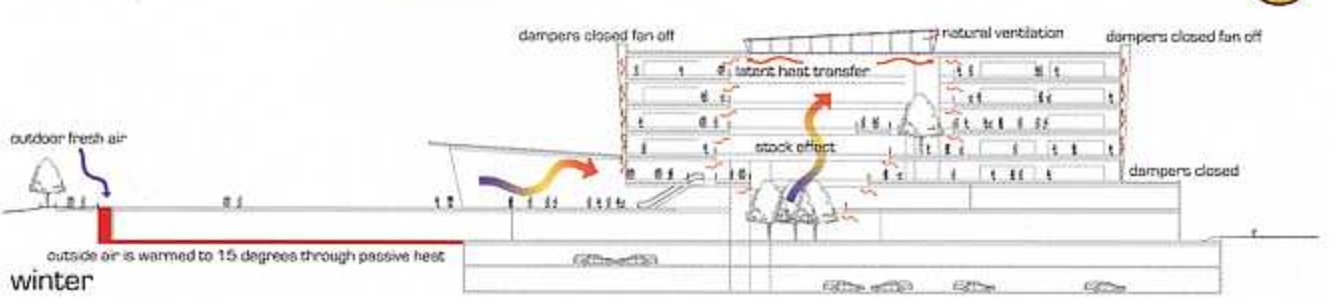


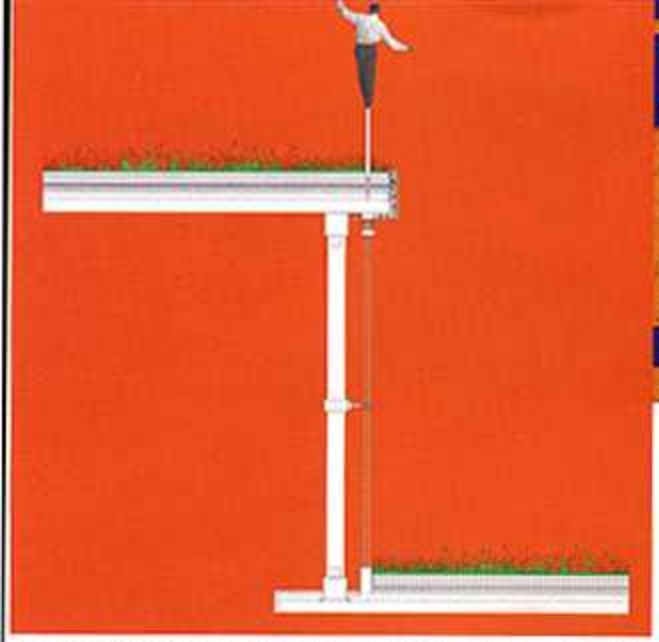


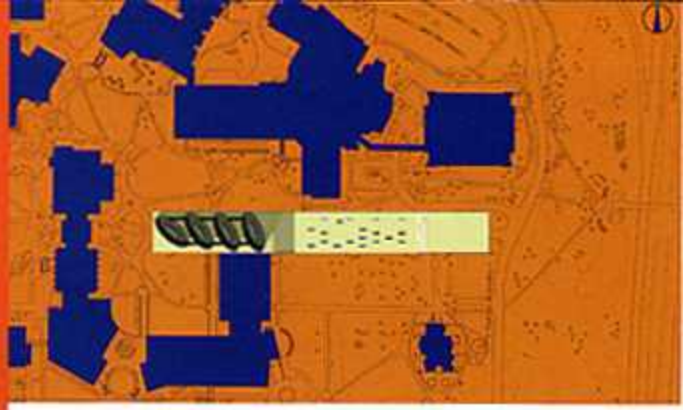
Top left: Pedestrian Circulation Diagram, University of Calgary campus, by Owen Craig. Top right: Pedestrian/Vehicular Scale Analysis by Craig Kolstad. Above left: Building Assembly Detail from the design stage of the studio, by Owen Craig. Above right: Assembly Analysis by John van Hemert. Bottom: Section Through Building, Winter Condition, by Keith Hlewka.

metaphor of the cellular membrane, using the green roof as a basis for manipulating and extending public spaces within the campus landscape. Craig Kolstad followed a similar theme of roof as landscape, directed instead toward a permeable relationship between the pedestrian scale of the campus and the vehicular scale of the freeway at the campus perimeter. Patric Langevin countered by presenting a distinct frame to a vaguely defined public space, and continued the sense of a public realm within the building where the programmatic elements were discrete volumes clearly suspended and contained by a massively-scaled breathable skin.

The studio also provided exposure to the various conflicting perspectives on sustainability and the potential value proposition of the endeavour. In addition to the thoughts of our real client, in this case an institution, the issue was considered from the point of view of the commercial development industry that has historically overlooked the competitive/marketing advantage that lower operating costs present to building owners. The issue was also considered from the point of view of the construction industry and the implications for life-cycle costs in the midst of the "value engineering" process. Finally, the idea of sustainable architecture was considered from a political viewpoint, specifi-







Above: Building Assembly Detail by Craig Kolstad. Above right: Site Plan by Patric Langevin. Right: Cross Section by Patric Langevin.

cally the role that the architectural profession has to play in underpinning the holistic values of sustainability and in meeting targets such as those set out by the Kyoto Protocol. By wasting less and being more efficient through design, future architects can have a significant impact on the built environment, which currently consumes more than 40% of all energy produced in Canada.

The studio provided an extensive student-generated database that the University of Calgary can use as a primer on sustainability, while the school has reaffirmed its commitment as one of the most environmentally attuned curricula in the country. CA

Edmonton architect Barry Johns, FRAIC (Hon.), FAIA, has been an advocate of sustainable architecture in his private practice and in collaboration with other architects and engineers since the 1980s. With Chad Oberg and Troy Smith, he conceived and delivered the Sustainable Architecture Studio at the University of Calgary during the winter term of 2002.