Selling the Bull:
Incorporating Symbolism in a Pragmatic Project

SUZANNE BILBEISI, AIA and
MOHAMMED BILBEISI, AIA
University of Oklahoma

The use of universal symbols in the built environment can give silent testimony to the purpose of that particular place and its time. But should those symbols be incorporated into every design solution? Even into the design of a building which contains a very pragmatic function? And can symbolism be incorporated in a project and still comply with strict university planning guidelines? If architecture is the result of the combination of form and meaning, then the design solution achieved at the Biosystems Mechanical Laboratory exhibits a belief in the need for the incorporation of appropriate universal symbols in the built environment to create architecture.

No architect would deny that renovation projects inherently require a greater level of attention, and that they are usually fraught with tensions and problems during the construction phase. But more than that, from the very beginning the reputation of the designer is put to the test, since he or she must be able to "see' the raw potential in what are typically very uninspired buildings.

Oklahoma State University, originally named Oklahoma A&M College, was founded as a land-grant university in 1890. Though the name was altered, the university remains heavily involved in agricultural education, extension, and research. The School of Biosystems and Agricultural Engineering, which belongs to both the College of Agriculture and the College of Engineering, Architecture and Technology, is a small but powerful force on campus. The department has 24 faculty members, generates $4 million of research annually, conducts numerous extension projects, and operates research stations at six locations across the state.

Of all the facilities which fall under the domain of the Biosystems and Agricultural Engineering department, the Mechanical Laboratory is the most important because it is where their new mechanical apparatuses are developed and constructed. The laboratories accommodate research in machine vision, sensors and controls, intelligent machines, and bio- environmental engineering. The machinists in the research shops fabricate the prototypes the faculty develop in the labs. It is a symbiotic relationship.... The labs could not function without the shops, and the shops would not exist without the labs. Fifteen faculty members conduct experiments in the Mechanical Lab, supported by seven full-time staff in the shops who make the research projects a reality.

Fig. 1.

The Mechanical Laboratory, built on the main campus in 1965, had become an eyesore – one member of the Campus Beautification Committee remarked that the building was "a blight on campus". Limited funds were allocated for the 32,500-sq.-ft. project, and the funding which was provided by the National Science Foundation had to be spent within a very short time frame. Upon initial analysis, it was clear that the building was solidly constructed, but was suffering some very real problems - insufficient heat and air conditioning, inadequate electrical service, asbestos panels and insulation throughout, no handicapped accessibility, and serious egress violations.

Beyond the corrections necessary to address these very practical considerations, we felt that the facility could and should become architecture – the faculty, researchers, and students deserved more than just shelter. The facility should inspire curiosity, and it should teach. The building should have dignity, and intellectually engage all who interact with it. This was the real challenge.

The expression of the ontology of the facility was our primary goal. The mechanical aspects of the function of the space – what is done here and how it is done – and the agrarian

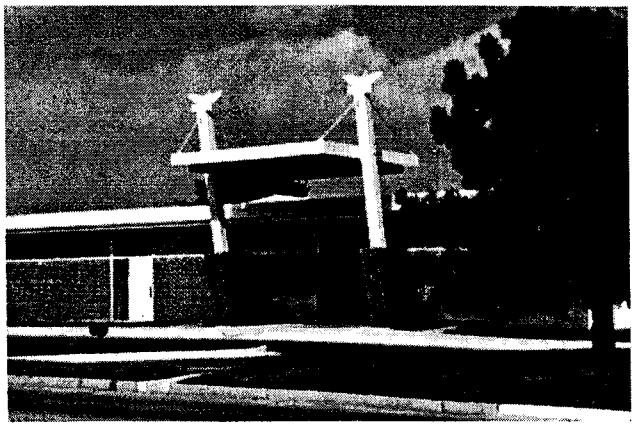

Fig. 2.

focus of the department provided us with the inspiration for the design solution.

We accepted the existing limitations and strengths of the structure, and targeted the renovation efforts to three critical areas. We began at the beginning - the formal facade of the building and the primary entry that faces an important vehicular artery into campus. This west elevation was simple and straightforward, a long and lean one-story brick building, sorely lacking in identity. The modest formal entry was hidden behind vegetation, and because of the lack of parking spaces near the building, it was virtually inaccessible to researchers or guests arriving by car. Disabled persons could not gain access to the building through this entry. Along the front of the building, window-mounted air conditioning units, sandwiched between asbestos panels, cluttered this principal facade.

The first design response was to address the deficiencies present on the main elevation of the building. The primary redeeming characteristic of the existing building was its horizontal profile, which comfortably reflected the fundamental horizontality of the Oklahoma prairie. What it lacked was a focal point; the addition of an entrance canopy creates that visual interest and marks the entry heroically. The new driveway and drop-off provide the link between the building and those individuals arriving by automobile. Handicapped parking spaces and accessible front doors now permit the disabled to utilize the main entry to the building.

The new entry canopy is an icon for the facility itself, greeting all that enter with an image of the assembly of parts which make up the foundation of the agricultural prototypes created here. Immediately noticeable is the forward thrust of the small structure, anchored by the red brick common to all buildings on the OSU campus. This form speaks of the forward reach of the department, and promises their commitment to the future. The thrusting steel members suspend a horizontal frame that carries a series of vertical louvers. These louvers recall the images of the agricultural machinery of the past, present, and future. And because they are painted green, the louvers also simulate the lighting effects of the small clusters of tree canopies prevalent on the Oklahoma range.

Fig. 3.

The steel members are capped with abstract symbols which emulate the crescent moon, the snake, and the horns of a bull – each an ancient symbol of fertility and prosperity by itself.'

The second critical area of renovation was the interior of the existing laboratory block. The corridors were hazardously configured with two dead-end situations, and no provisions for accessibility. Signage and a sense of place were also sorely missing. The laboratories themselves were dismally lit, and furnished with folding tables and makeshift equipment. Most of the windows had been replaced with air-conditioning units, and the remaining windows were painted or covered with foil. Light, air conditioning, and the supply of heat in winter - all necessities for basic human comfort - were drastically insufficient. The laboratories, though lacking in all these areas, were desperately needed in order for the department to function, as no fewer than ten classes meet at this facility each week, and $3.5 million dollars of research is conducted here by faculty and graduate student assistants annually.

Metaphors and symbols for the elements of the machine and the fundamental aspects of nature are referenced throughout the interior architecture as well. The corridors are enhanced by the use of a light blue metal louvered ceiling, carrying the rhythm of the overhead louvers from the exterior entry canopy through to the interior corridors. When the existing fixtures above the louvers illuminate this ceiling

Fig. 4.

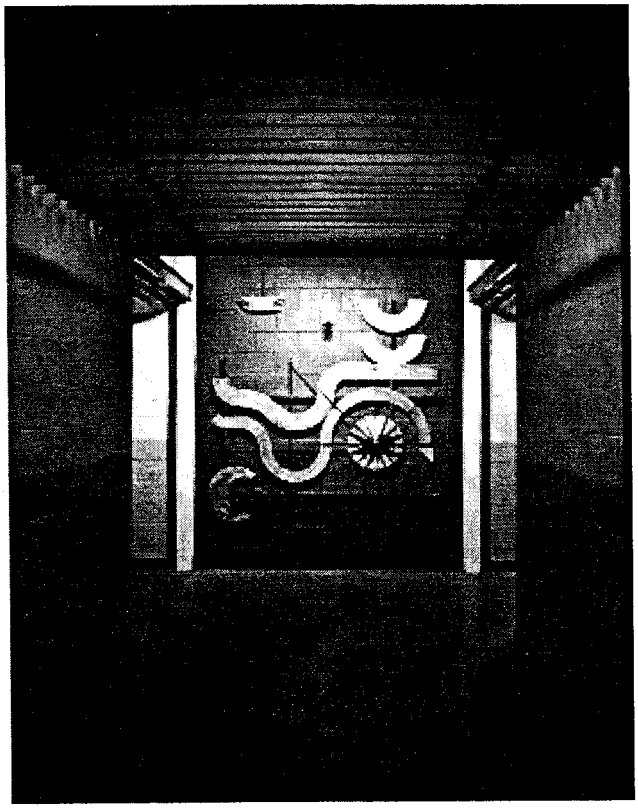

Fig. 5.

treatment, the impression of a clear Oklahoma sky is present. The wall sculpture, which is immediately visible from the public entry, was designed to represent the cycles of life, and suggests human interaction with those cycles. Symbols for the natural world are placed within the sculpture: the bull horns represent power, fertility, and strength; the crescent moon and its phases represents the regeneration of crops; the river is the nourishment of life; and the sun represents the source of fertility and life.? There are also references to manmade elements within the sculpture - repetitive objects suggesting heat exchangers, wheels, and cables.

In the laboratories, the miracle of "reuse, recycle, and renew" took place. Most notably, the labs were fitted with

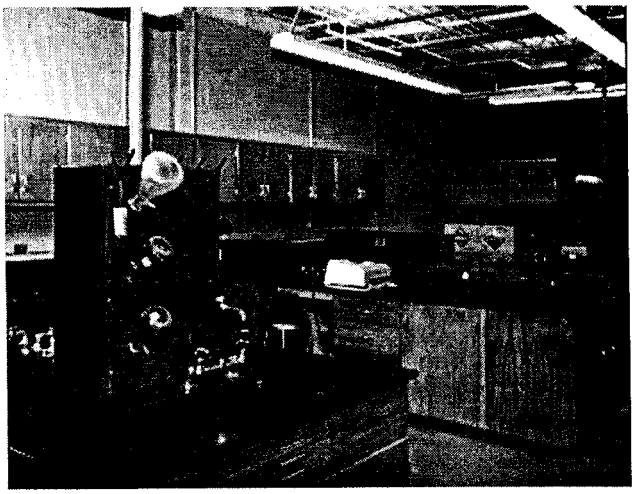

Fig. 6.

cabinetry that had been removed from the Physical Sciences building on campus, and was then refinished and repaired by department staff. Sinks, faucets, epoxy resin countertops, radiators, lighting fixtures, and fume hoods were also salvaged and reused to renovate the laboratories. The original windows, which had been in storage for almost twenty years, were located and reinstalled. This act of recycling fit well with the mission statement of the department: to provide the means to allow for the existence of man while limiting the damage to the natural environment.

The final critical issue that demanded attention was the shortage of fabrication/shop space. The original shop spaces were housed in two wings, which are metal buildings projecting eastward from the brick laboratory block. This organization created a courtyard that was utilized as a secure storage area for raw materials and machinery accomplished by enclosing that existing courtyard.

Traditional agricultural buildings seen throughout the Oklahoma prairie inspired the design for the new research shop. Certain characteristics of barn design are regionally understood though practices changed over the past hundred years, the cultural memory persists in holding on to some traditions. The most common barn of the western prairie states is the horse barn or feeder barn. Its diagnostic features are gable entrance, expansive roof, and large haydoor with overhanging hayhood.[3] The new enclosure for the Mechanical Lab is a traditional articulated brick and metal shed, honestly expressing its use and constitution. Critical dimensions, however, and the placement of features on the facade were driven by the use of geometrical proportioning and regulating lines.

The banding of brick, concrete masonry units, and metal panels forms a strong tie between this facility and other buildings on campus. In addition, the pattern emulates the horizontal banding of the Oklahoma landscape: red earth, green trees, and a gray tornado-rich sky. The wings of the existing building frame the new enclosure, yet it appears to stand free and projects a sense of independence from them.

The forward thrust of the hayhood at the ridge simultaneously refers to the original characteristic of a barn and repeats the dynamic quality of the entry canopy on the opposite side. Natural ventilation is accomplished by the use of a powered fan and vent system at each end, and natural light filters in through the clerestory windows along the north and south sides of the new structure.

The barn remains as a landscape element symbolic of specialization in American agriculture and the incorporation of science and technology in farming.[4] The new enclosure is a visible reminder of the agrarian ties of the university, and will enable the future developments in agricultural engineering at OSU to occur with dignity and pride.

So, how did we sell the bull? As ones who have the scar tissue to prove it, the challenge of working on a university project is satisfying not just one committee, but several committees. The first group was the biosystems department faculty, our primary client. To be honest, these engineers are a very pragmatic people who were looking for a straightforward way to achieve their goals of acquiring more enclosed space, and satisfying egress, mechanical/electrical deficiencies, and accessibility concerns. Aesthetic concerns were not on the top of their list; furthermore, many faculty members had even acquired a fatalistic attitude towards the building because it was in such poor condition.

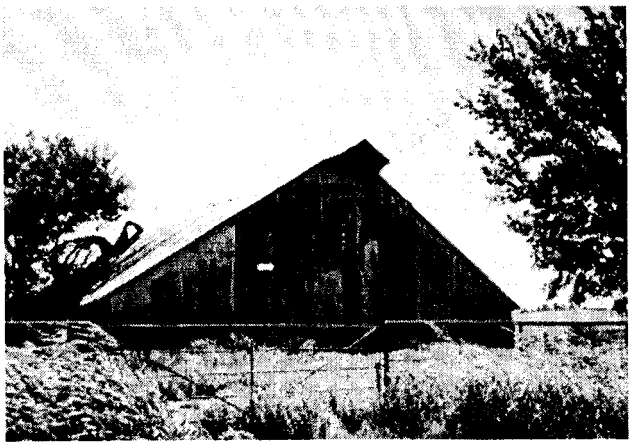

Fig. 7.

The design process began in the normal way with visits to the code officials, meetings with administrators regarding the budget, and an analysis of existing conditions. We then began an intensive series of meetings with the department faculty members and staff to understand the technical and experiential needs of each lab. With the assistance of a dedicated renovation committee chairman, several successful faculty meetings were held to discuss design options, and to increase the sense of ownership in the process and the final design solution. By doing so, we achieved a comfort level with the faculty, and were able to push them beyond the limits of what they could see as the potential solution to the problem at hand. The department head, though initially skeptical, was encouraged by the faculty reinforcement and took on the perceived "risk" of operating a unique building on campus. In addition, the department staff members who build the prototypes of agricultural machinery willingly assisted in the renovation of their building, working alongside the construction crew... this was an acknowledgment of that frontier spirit.

The next group we needed to address was the Campus Beautification Committee, whose purpose is to approve all additions and modifications to buildings or the landscape of the main campus. This committee needed assurance that a unique solution could be appropriate on our conservative campus. Because we were removing a tree, in addition to the exterior building modifications, the committee had to be satisfied that the tree was a necessary loss, and that the design was aesthetically pleasing and would be an asset to the OSU campus. The committee, though hesitant at first, agreed that doing something with the building was much better than doing nothing, and we were given the go ahead.

Once the project had been documented and the bids received, one more group needed to be satisfied... the physical plant shop manager in charge of maintenance and the trades groups. At OSU, all projects must go through a trade review, where the maintenance groups approve the design and agree to maintain it. If they were not "on board," we felt that certain subtleties might be lost, to the detriment of the final design solution. After some initial comments about the nature of the design solution, the only real concern they could voice was an objection to the type of lighting we proposed to use at special

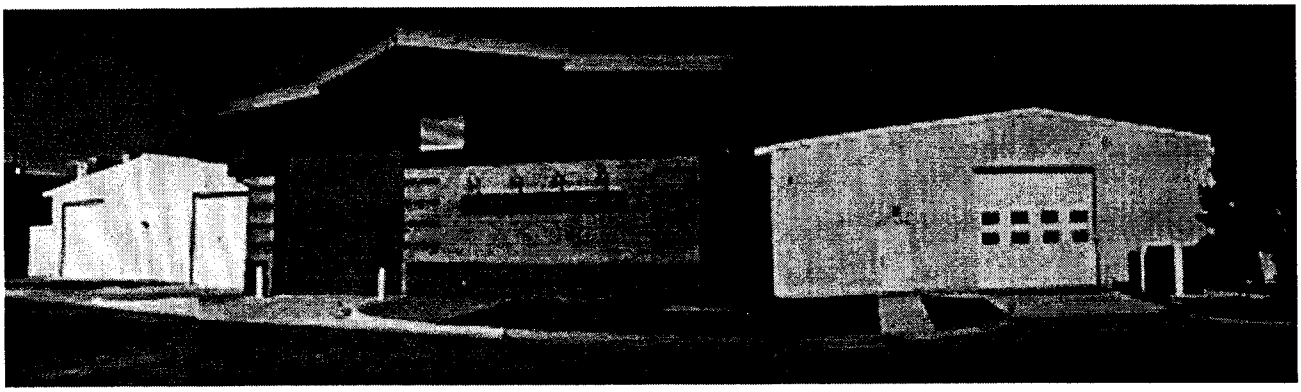

Fig. 8.

locations throughout the building. We felt strongly that the warmth of incandescent spotlighting was crucial to the overall aura and perception of the building. The trades refused to stock and change the bulbs. **A** compromise was finally reached between the department head and the trades – the department would buy the bulbs, and the trades would reinstall them as needed.

It has now been one year since the completion of the renovation project. In our informal post-occupancy evaluation, we found that the building is used with even greater frequency for everything from class meetings, research projects, and even social events for the department. They boast that the renovation of the lab has been critical in their efforts to maintain their national leadership in Biosystems and Agricultural Engineering. In addition, they have such an appreciation for the symbolic features of the design that they have asked permission to incorporate some of these symbols into their department letterhead and other small department renovations, most notably the renovation of the department's central reception area in another building.

We believe this building was profoundly transformed. it now represents the past, present, and future of the biosystems and agricultural education process and industry, and it is a testament to the Oklahoma spirit.

If symbolism creates meaning, then form with meaning creates *architecture.* The counterbalance of combining appropriate symbolic elements with a pragmatic project can be achieved, and even appreciated by the client and public at large.

NOTES

[1] Hall, James, *Dictionary of Symbols in Eastern and Western Art* (New York: Harper Collins Publishers, 1996), pp. 12.43, 103
[2] Ibid., pp. 12, 103, 106, 109
[3] Allen G. Noble and Hubert G. H. Wilhelm, *Barns of the Midwest* (Athens, Ohio: Ohio University Press, 1995), pp. 13 and 74
[4] Ibid., p. 21