University as Partner: Building Professional Relationships between Construction Programs and Their Institutions

Dr. James W. Jones, Ball State University

Dr. James W. Jones is the Construction Management Program Director and an Associate Professor in Ball State University’s Department of Technology. He has taught in the areas of leadership and construction management for more than 14 years and has more than a decade of experience managing construction projects in both field and office environments.

© American Society for Engineering Education, 2017
University as Partner: Building Professional Relationships between Construction Programs and their Institutions

Abstract

Construction engineering and construction management programs often seek industry partners as sources of curricular advice, case studies, field trips, guest instruction, internships, and permanent placement for graduates. These partnerships can be leveraged to enhance and improve programs’ resources and better prepare graduates for the professions upon which they are about to embark. While the focus is typically on partnering with external entities, programs often overlook their own institutions as valuable potential partners. Colleges and universities have sophisticated facilities, planning, and management departments that can provide a variety of easily-accessible resources and involvement. While many construction engineering and construction management programs might attend a bid opening or tour a new campus building under construction, there are a profusion of other approaches that can be used in many of the same ways as that for external partners. This paper examines how one construction program forged a partnership with its institution’s facilities department and how both the program and institution have benefited. Specifically, how the relationship was initiated and fostered, administrator and managerial support, instructional involvement from guest speaking through adjunct faculty status, advisory board participation, and advantages for faculty will be included. Additionally, grant opportunities, course and curriculum assistance, and internship and placement options will be detailed. Through this exploration of one program’s successful partnership, engineering educators from other institutions can decide whether their own programs could benefit through such a relationship and how to initiate develop it to fruition.

Introduction

Construction engineering and management programs have a distinct advantage over some other disciplines in that the construction field is active on campuses every day. While there might not be a rocket launch every day for the aerospace engineering students to observe, construction-related activities are a constant on university campuses. University facilities, planning, and management departments are building, renovating, and maintaining the university infrastructure that can be used as a learning laboratory for students in construction-related curricula. Beyond simply being a laboratory for observation, the university can be intentionally developed into a partner in the process of preparing the next generation of construction engineers and managers. While larger institutions typically have larger facilities departments, even smaller organizations have some personnel that are charged with the maintenance of facilities that might work with programs. Even those institutions who outsource some of these functions may find that the associated companies are willing to cooperate with construction programs.
Basic approaches: exposing students to construction activities on campus

Participation by observation is perhaps the easiest and most common approach to partner with the institution. In many cases, activities are open to the public and are fully accessible to students and faculty. For example, public hearings on construction projects, bid openings, etc. are well-publicized and open to everyone. However, although they might be open to all, coordination with the meeting organizer can go a long way towards fostering goodwill. Instead of simply showing up to a bid opening with a class of 50 students and taking all of the seats intended for contractors submitting bids, notifying the facilities department of how many students you anticipate attending can help them reserve a space large enough from all, and making sure students respect the fact that they are the guests and should surrender their seats to the active participants will help to insure that your students will be welcome in the future.

Tours of facilities under construction or soon to be under construction are another very common approach to involve facilities departments in student preparation. By coordinating campus site visits through the facilities department instead of directly with the contractor, it is often easier to get a tour with personnel who have been involved with the project since inception and are better able to describe the process from design all the way through construction. Facilities personnel are often keenly aware of the challenges that are faced by all parties and can provide an owner’s perspective instead of or in addition to that of the contractor.

Also, facilities personnel are constant throughout the project, while contractor or subcontractor personnel might be more likely to change, hampering coordination with programs throughout a project with an extended timeframe. However, the same project may offer multiple opportunities for class involvement. For example, as the project is starting and excavation is underway, a methods and materials class might visit the site and compare actual equipment production rates with those calculated in the classroom. Later, facilities personnel might lead students in the structural mechanics course through the project as the steel is erected, pointing out how the inspections are being conducted on the various connections. Later, the mechanical and electrical classes might walk through the rough-ins with the facilities energy engineer as they explain how the various systems were selected.

These simple steps begin to build the relationship between the construction program and the institution. Being a good partner includes coordinating with ample lead time, adequate preparation of students (such as insuring they have proper personal protective equipment for a tour of an active construction site), and following up with a simple thank you. Articulating the intent of the activity and the audience goes a long way to preparing a visit that will be beneficial for all. For example, a tour of a renovation project for an introductory freshman course would be expected to be different than a senior level electrical technical elective class observing
switchgear installation, and making sure the university personnel that you are coordinating with understand your rationale underpins the entire effort.

The author’s program was initially advantaged by having two faculty members who had previously worked in the university’s facilities and planning department. However, in the author’s experience, facilities personnel are typically accommodating and eager to assist with fostering student involvement. Many rightfully believe that the student that they help prepare today may be the designer or contractor on their project tomorrow, so it advantages everyone to use the university’s construction activities as a learning laboratory.

Another key to this involvement is fostering administrator and managerial support. On the academic side, keeping program and department administrators informed of activities on campus can build support, particularly when they understand how much more efficient this approach is over similar activities that are conducted off-campus. Touring a campus construction project typically requires fewer resources, including time and travel costs, as well as addressing liability concerns. Managerial support within the facilities department can be built through sharing how positive the activities were from faculty and student perspectives. For example, a few positive student comments shared with a facilities director may best demonstrate the real impact and value of the relationship.

Instructional involvement

Beyond simply exposing students to campus construction activities, facilities and planning personnel can be utilized directly in the classroom environment. The most basic approach is to use facilities personnel as guest speakers on specific topics. As with any guest speaking event, adequate preparation of all parties lends itself towards success. Insuring that the speaker understands the audience and their level of understanding, how the topic to be covered fits into the overall curriculum and course, and what the desired end result is all help the speaker prepare. Faculty can also prepare students by explaining how the guest’s presentation fits into the course, specifically including if the topic will be incorporated into assignments, tests, etc. Reviewing what it means to be a good student host, such as giving the guest undivided attention during the presentation (and staying off their phones) may also be beneficial.

The author’s program has had best success utilizing guest speakers from the facilities and management department in upper-level courses, particularly mechanical, electrical, and capstone courses. Material that has already been theoretically introduced may be reinforced by a guest speaker from facilities, covering application and practical concerns. By having already been introduced to the material, the students may be more engaging with the guest speaker, with more questions being asked and discussion developing.
For programs that require design reviews or other presentations, facilities personnel are often readily available for participation. By serving as an external expert, students are able to gain the practitioner perspective without having to bring personnel in from outside campus. The author’s program has also effectively used facilities personnel in the preparation of student competitive teams. Similarly, programs that have industry mentorship components in classes might explore the possibility of having campus facilities personnel serve in these roles. Others 1, 2, 3, 4 have noted the importance of involving industry in realistic and challenging capstone engineering courses.

As noted by Varma 5, practitioners can be effectively used as adjunct faculty members in design and construction curricula. As practitioners already employed by the university, facilities personnel may be well suited to serve as adjunct faculty in construction engineering and management programs. For example, the author was able to utilize a facilities engineer as an adjunct faculty member teaching a mechanical/electrical construction course when the assigned faculty member departed the institution unexpectedly. The relationship that was built previously through some of the aforementioned activities (attending bid openings, touring projects on campus under construction, and guest speaking in courses) was foundational to being able to make the facilities engineer an even more involved member of the program team. The author’s program has also used former guest speakers as adjunct faculty members to teach specialized technical elective courses focused on facilities management.

As noted previously by other authors 6, 7, 8, advisory boards can perform a vital role for engineering and technical programs. As practicing professionals, facilities and planning personnel might also fill a beneficial role as members of the construction program’s industry advisory board. With the increased involvement opportunities available to facilities personnel, they are able to provide a richer perspective that bridges both their own roles and that gained from interacting with the students on campus. This role helps to bridge the industry-faculty division and can lead to beneficial conversations regarding curricular needs.

Reciprocating the relationship

While the initial faculty perspective might be focused on how their programs can receive benefits by partnering with their university, they should be reminded that it is better to give than to receive, and this holds true in the university-program relationship as well. There are a number of grants available that faculty might explore with the university as the client beneficiary. For example, the author recently pursued a state-sponsored conservation grant that would have installed solar panels on a campus building that would have both provided electricity for the building and a learning laboratory for students to be able to learn more about solar energy. Students and faculty were able to partner with campus facilities personnel on a “real world” project that gave students experience with working with a client to develop a solution that would
meet their needs. Although the project was ultimately not funded, the experience was positive for all involved and the university was impressed that they were considered as a client and beneficiary.

The United States Green Building Council’s LEED Lab initiative is another opportunity for students to interact with the university as a client. This program allows students to participate in the certification of a campus building through the Leadership in Energy and Environmental Design for Existing Buildings: Operations and Maintenance (LEED-EBOM) process. Jones and Fick indicated that a close partnership with campus facilities personnel was crucial for this program to be successful. In the end, the campus can enhance their sustainability efforts by having students perform the bulk of the work to certify buildings through the LEED Lab program, while students gain experience on an actual certification project.

The university can also be viewed as a partner with regard to student and graduate placement. Facilities departments may be encouraged to offer internship positions to construction students, providing experience to the student and benefit to the institution. As the projects are for the student’s own school, there may be a greater sense of ownership and dedication to insure things are “done right.” This might also lead to permanent positions for graduates, solidifying the relationship between the program and university.

Conclusion

The university is often overlooked or under-utilized as a partner by construction engineering and management programs. A partnership between the construction program and the university can offer many benefits to all parties. Students are offered the opportunity to observe the campus construction as a learning laboratory and benefit from facilities personnel as guest speakers. Faculty and programs benefit from institutional involvement such as adjunct faculty and industry advisory board participation. The institution may benefit as the client from real-world projects and classes such as the USGBC’s LEED Lab program, as well as from having students and graduates assist their departments.

This relationship may be viewed as a continuum, with varying degrees of partnership being exhibited by different degrees of involvement and collaboration. An illustration of this continuum with some of the examples discussed in this paper placed referentially may be found in Figure 1 below.
Through these varied approaches, building a relationship with the university as a partner can benefit stakeholders including students, faculty, programs, and the institutions themselves.

Bibliography


