



## WHAT WORKS - A KECK/PKAL CONSULTANT REPORT

# BRINGING THE SCIENCES INTO THE SPOTLIGHT

### Background

This liberal arts college of approximately 2,400 students recently shaped a vision for the future to guide its strategic planning initiatives. Their planning document acknowledges college resources and sets out objectives and action strategies that are related to core objectives of academic programs, faculty development, and facilities expansion and enhancement. A companion document presents the case statement for a comprehensive campaign.

Their request for a Keck/PKAL consultancy was for advice on linking the planning of new spaces for science to the larger institutional vision, to the upcoming capital campaign, and to “restart” a stalled planning process.

### General Advice

The energy and dedication of your faculty to teaching and to making sure that the science facility is the right building for the campus are to be commended. Every faculty member with whom we met was a serious teacher and scholar and a thoughtful and devoted participant in the life of the college. It is clear that science faculty are passionate about what they do, and as well-educated, experienced professionals, they know very well the contributions that safe, well-designed modern facilities, especially laboratories, can make to student learning, faculty development, and improvement of institutional standing in higher education. A new science center that is designed around a clear mission and carefully conceived academic programs can be the ‘opportunity of a lifetime’ for a college. Good facilities and high quality instrumentation are crucial factors for recruitment and retention of excellent faculty and students.

It is clear the faculty wish for the science building process to get on track and move forward. Our recommendations suggest how to move forward.

Much good work has already been done by faculty toward the goal of excellent teaching and collaborative research in a modern facility on your campus, and it is important now that certain steps are taken to seal in the value of these accomplishments and get the building project on a sure course for completion.

Recommendations to faculty, the advancement office, the president, and the various division/department heads follow.

#### RECOMMENDATIONS: PLANNING A NEW SCIENCE FACILITY

To the Faculty:

- ◆ Identify a faculty shepherd
- ◆ Write a mission statement for the new building
- ◆ Work across disciplines.

To the Advancement Office:

- ◆ Make the case for scientific literacy for all students
- ◆ Showcase the science faculty
- ◆ Develop a strategy for fundraising beyond the building.

To the President:

- ◆ Communicate with faculty
- ◆ Balance features and budget.

To Division Heads:

- ◆ Review the master plan for alternative spaces
- ◆ Facilitate communication among faculty.



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## To Faculty

### **Recommendation # 1. Identify a faculty shepherd as soon as possible, reaching beyond current institutional and departmental politics.**

It was clear that many faculty in the sciences are energetic, dedicated teachers, and that they understand the need and the potential for a new facility. However, one reason the building project is stalled is that there is no one from the faculty who has been designated as a leader, with access to the information that the senior staff has.

Once a faculty shepherd is appointed and duties and procedures are clearly defined, some of the current indecision and anxiety among faculty will be relieved. The shepherd system has been tested within PKAL for several years now and is known to have been successful for many institutions, including similar colleges with liberal arts and sciences.

- ♦ Choose a shepherd with sound judgment and good organizational and interpersonal skills, and who has claimed the respect of individuals and constituencies that are involved with the project.
- ♦ The faculty shepherd should be a person who has good political instincts and can negotiate differences among people in a diplomatic way. There are several faculty leaders currently on your campus passionately committed to the building project, but they seem to be colored by historic interdepartmental politics and perceptions.

- ♦ Choose a person whose voice may not be the loudest, but again, someone who will communicate well and negotiate effectively across departments and among offices and who can lead groups of people into forthright discussions on sensitive topics.
- ♦ The shepherd should be able to get each person around the table to voice opinions and make suggestions.
- ♦ The shepherd should not be a dean or a staff member in facilities management. While people in these positions have crucial roles to play in making the science facility a reality, the faculty need one of their own to play this important leadership role in getting the facility designed and built.

To alleviate concerns about proper boundaries for the shepherd's role, clear guidelines and limits must be set, but they must allow enough flexibility to handle unforeseen needs as the project goes forward. Accountability by the shepherd can be assured by assignment of specific responsibilities, regular briefing sessions for communication, and guidance from college administrators and regular meetings for substantive discussions with the science departments individually and as a group.

If an appointment is made, we recommend a group meeting of officers, department heads, and science faculty for the purpose of commissioning the shepherd by introducing duties, responsibilities, limits to authority, and an approved plan for routing information, recommendations and other types of communications.

### **Recommendation #2. Write a vision statement for the new science building.**

It is important to the design process, and to thinking about present and future pedagogies, that the science faculty write a vision statement for the science building, and share it widely with the science faculty and with the dean and senior officers of the college. Although brief and general, the statement will provide important authority, focus, and principles for reference throughout the project.

We believe that the vision statement must be discussed openly and frankly, refined as necessary and officially ratified to show full support by administrators and faculty. It must allow some flexibility to accommodate changes to programs and needs of the college over time, and it should faithfully reflect the mission of the college and the missions of science departments. Writing and ratifying a vision statement may help to resolve issues about multiple uses that will affect design and cost of the building.



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**Recommendation #3. Faculty leaders and administrators closely connected to the project should draft a brief, simple document of planning premises and guidelines for ratification by the college.**

This document, along with the vision statement for the building, brings clarity to this complex process, reassures the community of processes and directions and motivates those who will do the hard work and assume accountability for outcome.

In addition, we urge the faculty to prepare an instrumentation/equipment spreadsheet that describes current holdings, future needs and costs for purchase and maintenance.

**Recommendation # 4. Begin to work across disciplines, because this is where science— and social problem-solving— is going.**

This cross-disciplinary exchange can begin with interactions of faculty within existing majors, such as biochemistry, and between the science faculty and the education department. For example, once a neuroscience major is developed, faculty in psychology and biology will have additional opportunities to work together. The faculty might strengthen this interdisciplinary teaching and learning with a colloquia series on interdisciplinary themes. Often, students will push this interdisciplinarity because of their research interests, so faculty should develop strategies for working together now and then imagine how they will want to work together in the future.

Without doubt, programs in biochemistry and neuroscience will continue to be important to students, especially those who wish to follow the models of the highly accomplished science alumni we met on campus.

There are grant opportunities available for faculty willing to work on research projects with students. There are also programs at the NSF for faculty to develop collaborative research projects.

On a very practical note, strong interdisciplinary programs for teaching and research require a significant amount of faculty time and ongoing attention. It is important to you as faculty that this work not be undertaken as another add-on without adequate workload relief; possible solutions include release-time from teaching a lecture class or a lab, release from a heavy committee assignment, and addition of laboratory staff or other support staff for departments. In addition, faculty involved in interdisciplinary programs must be able to rely on capable clerical support.

**Recommendation #5. Take the time and make the effort to be good listeners.**

Listen to the dreams and goals of the president and other campus leaders. Their vision and goals for the institution may be more in line with yours than you believe. Diplomatically propose times, places, and agendas for group discussions of academic and facilities issues that are important to your institution and to the sciences.

Typically, these issues have significant price tags that require long-term commitment to hefty financial support, and because they are complex, they are best resolved by bringing to bear the combined voices, understandings, and skills of faculty and administrative leaders.

Such meetings built around the notion of a 'safe space' for ideas are critical to good discussions about a building project. Faculty— and administrators— are appropriately ambitious for the future of the sciences, and as consultants with experience in these matters, we readily acknowledge that it is unnerving to place everything 'on the table' for discussion, recommendations, and ultimate decisions. However, if there is a 'safe place' for ideas in a climate of respect and goodwill (and certainly good humor!), the work is less emotion-laden, and it becomes do-able.



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### To the Advancement Office

**Recommendation #1. In your application for the Keck/PKAL consultancy, you mention that very few of the college's top prospects have a strong interest in the sciences. This can be changed.**

Advancement officers will want to write a case statement that stresses the importance of science and technology to 21<sup>st</sup> century higher education and to the work place. Not all of your graduates will be professional scientists, but it is important that every student become scientifically and technologically literate and proficient, whether this means understanding environmental issues, how computing can advance learning and research, or understanding current discussions on stem cell research.

You can persuade non-scientific alumni of the importance of a signature science facility. At a comparable , many top donors were not scientists, but in fact, were business people who understood the argument the advancement office made about the role of science in our society and in our global economy.

Read Project Kaleidoscope reports to cull the information you need to write this case statement. It will guide you as you solicit major gifts and write corporate and foundation proposals.

**Recommendation #2. Construct a prospect list for the Corporate & Foundation Relations office.**

The project can be advanced by constructing a prospect list of possible foundation, corporate and government donors. We assume this has already been done, but it should be done again, looking first at previous foundation donors, and then at local sources, including area and regional foundations and corporations, and then at national foundations. It should look particularly at alumni in the biotechnology and other scientific fields who could be contacted to generate interest about grants and student internships.

A good and reasonable goal for the CFR Office is to get a "lead" foundation donor whose gift will attract others. This could come from a local foundation or corporation. With the appropriate materials announcing a challenge and the engagement of the major gifts staff, this should be a very attractive campaign opportunity.

State funding should also be investigated. Some of the larger states have set-asides for construction of educational facilities.

**Recommendation #3. Identify contacts among alumni, parents, and trustees.**

Find out if your constituencies have connections to foundations, corporations and corporate foundations, and ask them to open doors for you. The CFR Director could go with the VP or Associate VP for Advancement and meet with a group of trustees in a particular city, to see if they know anyone who might be of help. Professionals with influence do not necessarily remember who they know and who might be connected to a philanthropic entity, so bring along lists of foundations and officers and let the trustees and others review them.

If contacts are identified, then ask the trustee to make a phone call, asking whether a personal visit would be possible. If a visit is granted, ask during the visit if the prospect will invite a proposal. Hold this kind of session every quarter or so during the academic year. Bring just a small list of prospects to each meeting, so that you don't overwhelm the alumni and trustees who can help but who are very busy.

**Recommendation #4. Showcase science faculty at alumni events.**

The alumni office will want to showcase their science faculty and science alumni during the campaign, to bring them to events to give short presentations and mingle with alumni. Once the architects have a model of the facility, the alumni office will want to bring it to events to generate excitement about the building. If possible, bring science students along as well.



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As another approach, go ahead and ask faculty, selected current students, and science alumni to write brief statements about their work and give testimonials about the value of their experiences, and ask them to authorize use of their statements and photographs in a fund-raising video or literature.

The advancement staff noted that they needed to cultivate the science faculty as well as donors who might support science, and this is a good idea. The science faculty many times know the alumni better than the administration does and they have a different sort of relationship with them—the mentor/apprenticeship bond, which is often strong and transcends time.

**Recommendation #5. Develop a strategy for science fundraising including, but also going beyond, the science facility.**

The CFR office and the rest of the advancement offices will want to develop a strategy focused on the sciences, beyond the building, such as finding ways to interweave faculty grant seeking with institutional grant seeking. A strong record of obtaining faculty research awards provides a solid basis for making your case for the sciences in institutional grants as a part of the facilities planning process.

One thing that is done at other institutions is to offer a monthly ‘grants for lunch’ program in which the CFR Office provides educational programming for the faculty, for instance on obtaining NEH or NSF grants, and on strategies to improve chances for success. Such a program could be offered, in some variation, to the faculty to further stimulate faculty grant seeking, and to identify and nurture a cadre of faculty leaders in the sciences, who then can take on leadership roles in larger, institutional grants, now and in years to come.

The college may want to build in an equipment fund to the overall cost of the building. While the faculty and administration believe that they are already well equipped, science is constantly changing, existing equipment will grow old. With an increased number of science majors, the faculty will need additional laboratory equipment (including replicates of certain items) to give students hands-on research experience as early as possible.

Understanding that the building will be completed within four years, that the college wishes to increase its number of majors in the natural sciences, and that the college wishes to improve its rank among liberal arts colleges, advancement officers can start asking for equipment and research and curriculum development funds, seminar and colloquia, etc., to start fueling the effort to strengthen the sciences. Current wisdom in higher education, backed by evidence from PKAL, states that faculty research and a program of faculty-guided student research are the keys to a strong science program.

You have the start of a strong program of summer faculty-guided student research and will want to continue building this program. One way to grow this program is to find public research grant funding or possibly alumni gifts for summer research. Endowed funds are best, but operating support can also be crucial to supporting a strong research program for science students during the summer. You may consider a challenge grant to raise summer research endowments. A similar college received a \$100,000 gift in its last campaign for summer research in the sciences from a family foundation, who then challenged them to raise an additional \$200,000 for the endowed fund.

### To the President

**Recommendation #1. Open lines of communication between the President’s Office and the science faculty.**

While the faculty demonstrated consistent support for the building and for strengthening science programs through development of additional research experiences, new majors and more interdisciplinary work, they did not think that the upper-level management was attentive to their concerns about the building.

While you told us that you had purposely stayed out of the Phase I building design process, we urge you to step in now in the spirit of listening to the faculty’s aspirations for their teaching and research in this building and to contribute your thoughts to the mix of ideas.



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The faculty prefer to talk with you face-to-face rather than try to guess what you are thinking. (Mind-reading is an inexact science!) A direct approach to getting your issues and concerns— and those of the faculty— out in the open for concurrence and/or resolution is critical to moving forward with good working relationships.

While it is often ‘scary’ to place heart-felt ideas and long-held ambitions on the table, this step is essential. No one gives up ‘power,’ rather, everyone becomes better informed and sensitive to alternative points of view. Participants will then be able to meet assigned responsibilities within a framework of mutual understanding. Although the faculty expressed concern about lack of communication, they did not waiver in their commitment to college leaders and a great future for the campus.

**Recommendation #2. If there are no faculty representatives or faculty liaisons to the Board of Trustees, it may be very useful for the President’s office to send an abbreviated summary of specific board actions to department chairs.**

Their responsibility will then be to share the information with their departments at a regular meeting or to forward it to specific faculty members in their departments.

On one campus, a document is sent by the president to faculty and staff after each board meeting which summarizes board actions (not their discussions, undecided matters, personnel matters, etc.) relating to the facilities planning project.

This document gave faculty access to the status of decisions that matter a lot to faculty, including authorizations as they approached various stages in their project.

**Recommendation #3. Creatively explore the tension between a centerpiece facility and the need to bring the project in on budget.**

The faculty wishes to make this building a centerpiece of a strengthened science program, and they are skeptical of making the building multipurpose. During our visit, many people said to us that the college “always under builds.” This feeling is in direct tension with the college’s desire to bring the building in at— not over— cost. This tension needs to be explored by both sides of the argument.

We do not believe that a donor would be more attracted to making a gift to a building because it is multipurpose. In fact, we believe that a stronger case can be made to build the best possible, “right-sized” science building for your community.

We strongly recommend that the college consider bringing in an expert on facilities planning for one or two focused visits so that this person can review both the programs and the building design to make sure that there are enough spaces and appropriate spaces for a top-notch science program. Assurance by a planning professional may be persuasive in making a case to trustees, prospective donors, alumni supporters and others.

The college has a once-in-a-generation opportunity to create a building that has the capacity and conditions to support students and faculty conducting science in an active, hands-on way. This opportunity may well be diluted if faculty do not have the number and the kind of flexible spaces that they need to teach now and in the future.

It seems to us that the college should take another look at the campus plan to locate the kind of social spaces that you as the president are looking for. These kinds of spaces— a tiered classroom and an atrium— can indeed serve effectively as social spaces. But they and other social features should be designed into a science building in a way that serves your larger vision of a natural science community. A new building needs to serve these science constituencies, as well as the larger campus community.

**Recommendation #4. Consider what a thriving natural science community requires.**

One division head suggested that the college should revisit the uses of the building to find cost savings. Student-faculty research spaces and classrooms must be primary. One student stressed the importance of having their own space, their own place to “hang out” with fellow science students and also to leave their setups in place for a while. This underscores the PKAL idea that science is learned best under the guidance of faculty mentors who create with their students a natural sciences community. An up-to-date science facility allows such a community to develop and thrive.



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To recruit additional excellent faculty members and students, make sure that the science facility you design will be a magnet. It should be attractive, modern and fresh, and should house spaces that will allow students and faculty to move seamlessly between demonstration and laboratory, and provide students with comfortable spaces where they can do their homework.

“Unpack” the green features of the science building preliminary design to see if you really want and/or need them, and if so, select those that are most significant.

While sustainable design is commendable, you may have to balance its contributions to preserving the environment with other steps towards becoming a top-notch liberal arts college with a strong science program. The impact of the building on the academic program will be enormous, creating a whole new swirl of activities focused on the sciences, and it is this that you want to energize.

### To the Division Heads

**Recommendation #1. Review the campus master plan to see if there are alternative spaces for the tiered classroom and social gathering spaces that seem to be designed by administrative leaders.**

A small gathering place— an atrium—in the science building will work well, but a large social space and a large tiered classroom might detract from the best science teaching and learning.

Do not try to meet all of your pent-up building needs in one building. The science faculty have been making do in such antiquated, cramped and ill-suited spaces that they deserve the opportunity to think about the ideal building, and senior administrators need to take their concerns seriously.

Superior science education is a niche that many liberal arts colleges are developing in order to attract excellent students and to prepare the future work force. Do not short-change yourselves in joining these ranks by compromising spaces within the science building that could be used to educate students to the very best of the institution’s ability.

Placement of the new science center near the main entrance to campus sends a clear visual signal about the college’s commitment to development of excellent science programs for the twenty-first century.

**Recommendation #2. Realize that the faculty need a spokesperson from among their own ranks.**

While your facilities staff possess a wealth of information about buildings, the land on which they are located, their function and maintenance, they are not in the classroom day-in and day-out with students, as are the faculty. Attention to students through one-on-one and small-group interaction represents the faculty members’ gift. This personalized instruction is their passion and this is what inspires students.

**Recommendation #3. Facilitate communication with your group and the president, while at the same time, be open in sharing information with those who report to you.**

We noted some frustration among groups of campus constituents that they were kept in the dark about crucial decisions having to do with the science facility. Be clear in your communications with the President— let him know what people are really thinking— and carry messages back to those who report to you. Share information across divisions, not only at the top levels, but rather among all people in your divisions and departments.

A more open climate will make it easier for all campus constituents to move forward on this science facility.

### To Alumni and Trustees

**Recommendation #1. Stay in touch with the college and inform them about your work in the sciences.**

Based on the small group of alumni with whom we met, this constituency can clearly be one of the college’s strongest and most effective voices of support for a new science facility and a strengthened program in the sciences. Alumni who are practicing scientists should consider volunteer opportunities, such as speaking about the importance of the sciences before alumni groups, contacting people in their communities who might have influence with philanthropic organizations, and creating research opportunities or internships in their organizations.



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Perhaps you could also look for opportunities to donate science equipment, or offer to give a lecture in class or a presentation for career planning purposes. And of course, make your own gift to the facility.

### **Recommendation #2. Keep the President and the Division Heads informed about breakthroughs in scientific research and science instruction.**

You as practitioners in the field will know immediately when scientific discoveries are made, or when trends in research and teaching begin to change. You will know because you have to adapt at the workplace in order for your companies or organizations to stay competitive.

Share your knowledge about these trends with the President and senior officers so that they can feel confident about the urgency of the science facility, and to ensure that the College is doing as much as it can to make science instruction meaningful and up-to-date.

### **Recommendation #3. When you visit campus, take a faculty member, or several, to lunch.**

By doing so, you will be able to share your experiences at the scientific workplace with them, and they can share with you their accomplishments in teaching and research, and the excitement of working with very able students. This will help you better understand the college environment as it proceeds day to day and will be a morale boost for the faculty.

### **Summary**

This summary highlights issues and recommendations for the college, for moving forward with Phase II of design and construction of a new science building to serve academic program needs for undergraduate instruction and research in the science departments. Chief aims are excellence in teaching and research in the sciences and enhancement of college standing in higher education. Phase I of planning and architectural design has been completed, and the gains made during that experience can serve as the bridge to new work ahead.

With much of the basic planning either completed or underway, and with a clearly expressed desire by the community to go forward, we as consultants recommend that steps be taken to accomplish the following objectives:

- ◆ Create effective lines of communication between major campus offices and faculty
- ◆ Facilitate an organizational structure and a procedural plan that will facilitate communication in general and the collection and routing of key building project information
- ◆ Appoint and commission immediately a faculty shepherd to serve as leader of faculty efforts on the project and to serve as faculty liaison to all offices and constituencies with substantial informational, leadership and decision-making roles

- ◆ Develop a vision statement for the building that is ratified by administrators and faculty
- ◆ Write a statement of key planning premises and guidelines that spells out the 'givens' and the assumptions that will guide building design and use
- ◆ Implement a comprehensive plan that involves trustees, administrators, faculty, students, alumni and friends of the college in raising funds to support science program initiatives and the building project
- ◆ Locate an alternative space on campus for a tiered classroom and social gathering place
- ◆ Facilitate support for interdisciplinary initiatives and for collaborative research by faculty and students and workload relief for faculty.

We were delighted to find many capable, energetic, devoted people from diverse offices and duties who are highly motivated to work together for a new building and for excellence in science, and who are willing to seek and implement ways to improve communication and patterns of interaction to achieve this goal. ■