Program Review
Building Construction Technology Department
Portland Community College

Introduction

According to Portland Community College's Academic Services website, the purpose of a program review is to provide a department "an opportunity to step back and take a broad look at [their] program or discipline." During this process, that program or discipline needs to "develop an understanding of the challenges [students in the program] face and to communicate those challenges to the greater PCC community." It is also "an opportunity for [program faculty and staff] and the PCC community to plan to meet those challenges." Ultimately, a program review "attempts to explain what our students should learn, why they should learn it, and how well they have succeeded in their learning."

Staff in the Building Construction Technology (hereafter BCT) program at Portland Community College developed a three-fold process to meet the above purposes. First, they came up with a way to assess the program at the present time, so that weak areas could be identified and addressed. Second, they sought input and advice from various "expert" community members. For this BCT staff relied heavily on the program Advisory Committee, but did not limit input to that group. Third, they analyzed information collected and developed a plan for improving the program. This report summarizes the information gathered and presents the program improvement plan.

The BCT staff developed questions in specific topics to structure the program review around. The topics and their related questions are:

1. PCC Outcomes	Do BCT outcomes support PCC Outcomes?
2. BCT Outcomes	Do BCT course outcomes support program outcomes?
3. Recruitment	3.1 How would you rate the current recruitment practices? 3.2 What new strategies would you recommend?
4. Curriculum	4.1 Is the curriculum aligned with the needs of industry? 4.2 What changes, if any, are necessary to better align with the current and/or future needs of industry?
5. Student Retention	5.1 What percentage of students complete the program? 5.2 What are the current student retention strategies? 5.3 How do you rate the current retention strategies? 5.4 What new strategies should be employed?
6. Student Expectations	6.1 What can we do to better serve students? 6.2 Is the program curriculum meeting student expectations?
7. Scholarships	7.1 What is currently available to students? 7.2 Where can we find dollars for our foundation scholarships account?

8. Equipment & Facilities Are we instructing students using industry standard equipment?

9. Fundraising
9.1 What are the current fund raising strategies?
9.2 What new fund raising strategies should BCT pursue?

10. Faculty
10.1 What are faculty members doing to keep up with changing construction technology?
10.2 How do you rate the BCT full time faculty?
10.3 What should faculty members be doing to keep up with changing construction technology?

11. Student Tracking
11.1: How do you rate the program's tracking method?
11.2: How can we improve our tracking of BCT graduates?
11.3 Are employers satisfied with BCT graduate employees?

12. The Future
12.1: How will the construction industry change in the next five years?
12.2: What major changes, if any, should the BCT department make over the next five years?

13. Program Overview How do you rate the BCT program overall?

In order to answer these questions, the BCT department asked for help from the following groups, or categories, of people:

Group A:	***University Cohorts***
Group B:	***Community College Cohorts***
Group C:	***Students and Graduates***
Group D:	***High School Cohorts***
Group E:	***Industry Associations***
Group F:	***Industry Professionals***
Group G:	***PCC Cohorts***

These people answered those questions relevant to their expertise in two ways: first, they accessed a web site with a matrix that allowed them to enter information from where they live or work. Second, many participants gathered at Rock Creek Campus on 31 October 2003, where they met with the other members of their group and answered the questions collaboratively. The next section of this report summarizes the information these individuals and groups supplied for each question.

The Questions and Their Answers

Question 1 Do BCT outcomes support PCC Outcomes?

BCT staff answered this question by comparing the outcomes for all program courses with PCC outcomes. The consensus was that BCT outcomes do support PCC outcomes. See Appendix A for PCC and BCT program outcomes, a link to BCT course outcomes, and the BCT "Core Outcomes Mapping Rubric."

Question 2: Do BCT Course outcomes support program outcomes?

Dave Rogge, from Oregon State University, thought one of the outcomes for BCT 225 (Construction Management) advertised more than could be delivered: "covering 'All major construction management concepts and procedures' [in one class] sounds a bit ambitious." The Industry Professionals group felt that we should clearly indicate whether a course pertained to residential or commercial construction in the class title and/or outcomes. Outside of those two points, groups felt that BCT course outcomes were aligned with program outcomes.

Question 3.1: How would you rate the current recruitment practices?

While the responding groups indicated our practices are "good" (groups D&G) or "excellent" (group A), they also felt we could do better, as outlined next in question 3.2.

Question 3.2: What new strategies would you recommend?

Group A (University Cohorts) felt that improving our website and adding links to relevant industry sites would help recruitment. Group C (students and graduates) said the PCC class schedule, which used to be mailed to every house in the district, was critical to their entering the BCT program. Several looked at it for a few terms before investigating specifics about the program, and were sad to see this resource terminated.

Overall, the groups offered the following list of specific ideas for recruitment:

- *Send small mailings out to targeted populations such as high school students, engineering students at other colleges, former students, and employers.*
- *Have alumni and faculty speak to students at high schools such as Benson about the construction industry and potential careers.*
- *Target people already in construction who may be thinking about a career in management. Find these people through the union halls or small business owners associations and support services such as the HDC.*
- *Advertise the BCT program with various worker re-training programs.*
- *Participate in regional events such as the OBC Construction Academy, career fairs devoted to construction, and relevant industry trade shows.*
- *Market the BCT program through association newsletters, temporary labor agencies, career councilors, home improvement centers, and building departments.*
- *One group felt that the BCT Career Day was "a lot of work for little return," and wondered if "this time and energy [should] be put toward other efforts to strengthen relationships with the high schools."*

Question 4.1: Is the curriculum aligned with the needs of industry?

The groups felt our curriculum is aligned at this time—current and former students especially appreciated the hands-on portions of our program—but had suggestions to make sure we keep up with innovations in the industry. These are summarized in the next question (4.2).

Question 4.2: What changes, if any, are necessary to better align with the current and or future needs of industry?

The following are specific areas many groups felt that the BCT program needs to stay current in:

- *Energy concerns*
- *Green Building*
- *Mold, Lead, and Asbestos*
- *Insulated Concrete Forms (ICF's)*
- *Structural Insulated Panels (SIPS)*

Overall, the groups felt BCT should "become the information clearing house for the local industry," and "become the known place to go for information and education for the ever changing industry."

Question 5.1: What percentage of students complete the program?

The BCT and CM programs combined typically have 35 degree or certificate-bound students at the beginning of Fall term. Numbers of graduates for the past five years are listed here:

Year	AAS Degree	2 Year Certificate	1 Year Certificate
2004	6 (17%)	7 (20%)	2 (6%)
2003	4 (11%)	10 (11%)	6 (17%)
2002	3 (9%)	3 (9%)	2 (.57%)
2001	3 (9%)	8 (23%)	1 (.29%)
2000	3 (9%)	6 (17%)	2 (.57%)
1999	6 (17%)	3 (9%)	2 (.57%)

*Percentages are estimates only. It is difficult to know if students in our classes are actively seeking certificates or degrees, or are just taking a few classes to learn new skills. In addition, not all of our students have formally declared a major.

Question 5.2: What are the current student retention strategies?

The current BCT retention strategies are:

- *Program math and English prerequisites: students entering the program with basic competencies have a greater chance of success.*
- *Competent, dedicated full time and adjunct faculty: currently, full-time faculty members teach 66% of BCT/CM classes. Having a stable faculty encourages students to stay in the program.*
- *Scholarships: students are more likely to complete the program if they receive financial aid (see question 7.0, "Scholarships").*
- *Student Advising: faculty members are available for student advising as needed. However, students are not assigned specific advisors, nor are there regularly scheduled advising appointments.*

Question 5.3: How do you rate the current retention strategies?

The groups all felt our program retention could and should be better—the most common answer to this question was "average."

Question 5.4: What new strategies should be employed?

Some groups felt that they needed some understanding of why students didn't complete the program before they suggested new strategies for keeping students. One group wondered if students left the program before completing because they were able to get a job with minimal training. Other groups did give suggestions for improving retention, as follows:

- *Better communication about opportunities available to graduates.*
- *Have alumni tell potential and current students about their jobs, salary, etc.*
- *Make sure department teaching is good: current and former students noted "when teachers got [them] enthusiastic about the topics [they] were studying" they were "more encouraged . . . to continue to the end."*
- *Work with high schools to better prepare students coming into the BCT program—improve math skill, etc.*
- *Make students better aware of scholarship opportunities.*
- *Graduate mentoring.*

Question 6.0: Are students and graduates satisfied with the training they received in the BCT/CM program?

- and -

Question 6.1: How would you rate the program at meeting student satisfaction?

The groups were given the following options to choose from:

- *More than meets student expectations*
- *Meets student expectations*
- *Somewhat meets student expectations*
- *Is not meeting student expectations*

We also gave the groups the results of a student survey given to current and former BCT students. See Appendix B for the results of that survey.

- *Group A felt we met student expectations*
- *Group F said we somewhat meet student expectations*
- *Group C—students and graduates—did not rate the program, but felt "the BCT program was awesome. We would have liked a little more on plumbing and electrical even though we know we probably won't do it, it is nice to be able to evaluate a licensed electrician's work."*

Question 6.2: How could the program improve student satisfaction?

Members of the various groups made the following points here:

- *Student satisfaction is directly tied to good teaching*
- *"The number of full-time faculty positions make it difficult to maintain a consistent staff and quality of instruction" (Students and Graduates)*
- *Informal gatherings such as BBQ's are a good way for students to develop good working relationships with staff and other students*
- *Students want a real-world construction experience; they want to learn about "tearing into a building and what goes into that process," and "all the checking and verifying, protection and shoring, basically all the planning that needs to happen before and as work is performed."*

Question 7.1: How would you rate the availability of scholarships?

- *Group A, University Cohorts, felt our scholarship pool was "fair."*
- *Group C, Students and Graduates, thought the list of scholarships was OK, but noted "most of the group did not know about available scholarships. Some had applied while in school but did not get anything."*

Question 7.2: Are there other scholarship opportunities we should pursue?

Students and Graduates felt that they "would like to see something more local provided…perhaps from local sponsorship such as Home Depot or other local businesses." In addition the group thought a web page that listed what was available, how much, and what the application process was would be helpful.

Question 8.1: How would you rate the BCT equipment and facilities?

- and -

Question 8.2: What improvements would you make to the current equipment and facilities?

All groups answering this question felt our equipment and facilities are "excellent," but some felt they could be even better. Students and Graduates made the following points:

- *It would be good to build an entire house from start to finish.*
- *Staff could use the construction here at the Rock Creek Campus: have classes meet with the Superintendent or Project Manager once a month, have the classes go on tours, etc.*

Question 9.1: How would you rate the current fund raising strategies?

and

Question 9.2: What new fund raising strategies should BCT pursue?

Fundraising rated only a "good" and "fair" grade. Ideas for raising more money for the program included:

- *Make more things to raffle off at fundraisers: playhouses, decks, etc.*
- *Find a way that students could actually work on people's houses.*
- *Approach the residential construction industry about ideas for fundraising.*

Question 10.1 What are faculty members doing to keep up with changing construction technology?

BCT faculty members stay current in the industry by:

- *Subscribing to industry journals*
- *Attending subject area classes/seminars*
- *Belonging to industry associations*
- *Working at jobsites as schedules permit*

For more information on faculty qualifications and activities see Appendix 2

Question 10.2: How do you rate the BCT full time faculty?

- and -

Question 10.3: What should faculty members be doing to keep up with changing construction technology?

Overall, BCT faculty rated an "excellent," but again, there is room for improvement, as noted here:

- *Since instructors can't be expected to know everything about everything, they should ask experts to teach some subjects.*
- *Guest lecturers shouldn't merely talk about generalities, but specifics: advantages and disadvantages of different materials and installation methods, common mistakes, things to watch for, etc.*
- *Instructors should have classes visit jobsites multiple times so students can see projects from start to finish.*

Question 11.1: How do you rate the program's tracking method?

- and -

Question 11.2: How can we improve our tracking of BCT graduates?

Group A, University Cohorts, felt the BCT tracking is "non-existent." Students and Graduates noted "Spencer seems to be the manifold for communication…hooking people together that want to be hooked up." The following list is a summary of ways groups felt we could improve BCT tracking:

- *Use e-mail*
- *Use the internet*
- *Start an alumni association and have events to get people together*
- *See if the PCC registrar would help out with this activity.*
- *See if we can get a graduate student to do this*

Question 11.3: Are Employers satisfied with BCT graduate employees?

The groups felt that they did not have enough information to answer this question.

Question 12.1: How will the construction industry change in the next five years?

The following list summarizes points made here:

- *Labor shortages are forecast as experienced workers retire*

- *Candidates for entry into the construction workforce are most likely to come from traditional minority groups and from the female population*
- *Sustainability is here to stay. Having LEED (Leadership in Energy & Environmental Design) accreditation on your resume wouldn't hurt*
- *Knowledge of computer applications for construction is more and more critical*
- *The number of non-English speaking workers will increase*
- *The industry will continue to become more specialized, resulting in fewer individuals with a broad range of skills*
- *More litigation*
- *More regulation*
- *Higher cost of doing business*

Question 12.2: What major changes, if any, should the BCT department make over the next five years?

The overall feeling is that the BCT program needs to continue to adjust its curriculum to address the points from Question 12:1, and needs to continue to grow.

Question 13: How do you rate the BCT program overall?

The groups all felt the Building Construction Technology program is "excellent," or "super," but again noted areas that could be improved, as detailed below:

- *Members of group A—University Cohorts—wondered if "more graduates [could] be produced with the existing resources."*
- *Group E—Industry Associations—felt "overall, we think that PCC's BCT program stands above all others in the state." They feel "the faculty appears to be of improved quality [and] the facilities are first-rate . . .." They continue "the department chair has done an outstanding job of getting input from the industry through the advisory committee and other means."*
- *Group C—Students and Graduates—noted "overall the BCT program was super. Many in the room acknowledged that students tend to get out of the program what they put into it. Many know folks who have dropped out, or who skid through the program. There was talk about that relating to the maturity level of the student."*

Conclusions and the Program Improvement Plan

Overall, the answers to the above questions indicate that the Building Construction Technology program at Portland Community College is doing a good job. However, there are some specific areas group members felt needed improvement. These areas, along with an improvement plan, are listed below.

1. Recruitment

Since the PCC class schedule is no longer mailed to every house in the district, most groups felt that alternative recruiting methods are needed, as outlined in question 3.2 above. The BCT department has already improved its website (www.pcc.edu/bct), and also plans to:

- *Advertise in Building Futures magazine, which is put out by the Oregon Building Congress and goes to High School construction instructors, counselors, and students.*
- *Have alumni and faculty speak to students at high schools such as Benson about the construction industry and potential careers.*
- *Target people who are already in construction who may be thinking about a career in construction management. Find these people through fliers at the Home Builders Association, small business owners associations, and support services such as the Housing Development Center.*
- *Advertise our program with various worker re-training programs, trade organizations, and PCC counselors.*
- *Participate in regional events such as the Oregon Building Congress Construction Academy, career fairs devoted to construction, and relevant industry trade shows.*

- *Market the BCT program through association newsletters, temporary labor agencies, career counselors, home improvement centers, and building departments.*
- *Prior to the beginning of each term put a press release in the Daily Journal of Commerce listing BCT classes offered that term.*

2. Curriculum and Faculty Improvement

Groups felt that BCT staff members need to keep up with innovations, issues, materials, and methods in the industry. To stay current, they plan to:

- *Continue to attend seminars and gain certification in relevant areas.*
- *Introduce subjects suggested by groups into our curriculum: Energy concerns, Green Building, Mold, Lead, and Asbestos issues and remedies, Insulated Concrete Forms (ICF's), Structural Insulated Panels (SIPS), and plumbing and electrical basics.*

  The department has already started teaching some of these; for example, ICF's (Insulated Concrete Forms) are taught in both BCT 103 and BCT 127, BCT 206—our new Sustainable Building Practices course—addresses green building, plumbing and electrical basics are taught in BCT 211, and we will begin teaching a new class on kitchen and bath mechanical and electrical systems next year.
- *Look into having a faculty member earn a LEED certificate.*
- *Faculty members will look for opportunities to work in the field to stay current and keep skills honed*

  In order to improve our program, the BCT department has recently added a new certificate/degree opportunity: the "Design/Build Remodeling" path. This option combines curriculum from Building Construction Technology and Interior Design, and graduates will be qualified for careers in the remodeling and kitchen and bath industries. Career opportunities include remodeler, kitchen and bath designer, cabinet installer, project superintendent, project manager, estimator, designer, and working as a showroom/sales associate for a remodeling company or a kitchen and bath design/build firm. There are also many career opportunities in the wholesale or retail distribution branches of the kitchen and bath industry.

3. Student Retention

This has long been an area of concern for the BCT program. Our current retention strategies, outlined in question 5.2, have had some limited success, as can be seen from the table in 5.1. The same table, however, shows there is much room for improvement. The BCT program intends to implement the following suggestions from questions 5.4:

- *Better communicate career opportunities available to graduates in our classes, and include this in our CCOG's.*

  We do discuss career opportunities with management students in BCT 100, but don't yet have a formal place to talk about this with the hands-on students.
- *Have alumni tell potential and current students about their jobs, salary, etc., perhaps at an informational meeting or a department barbeque.*
- *Continue to improve department teaching through peer review and the things discussed in the "Faculty Improvement" section above.*
- *Work with high schools to better prepare students coming into the BCT program.*

  The BCT department has already begun doing this: the main idea behind the "Framing Student Success" NSF grant is to better prepare high school students for college.
- *Make scholarship information more available, and find new scholarship sources*

  We have made scholarship information more available already; it is posted on our department website (www.pcc.edu/bct). Also, there are many scholarship opportunities available for students who choose the new Design/Build Remodeling pathway.

4. Student Tracking

Student tracking is another area the BCT department has long been concerned with. In the past, staff members have made some rudimentary attempts to improve here, but implementing the following will improve it:

- *Develop a master e-mail list of current and former students.*
- *Keep current and former students updated about our program through the BCT website.*

We are looking into hiring someone part-time to take on these tasks.

Conclusion

The Program Review process has been both difficult and informative for the Building Construction Technology staff. Creating a plan, recruiting and organizing members of the various groups, developing good questions, collecting information from the groups, sifting through that information, and using that information to develop a plan of action has been a journey we are glad we took.

This process has told us we are doing many things well. It was heartening to have impartial observers analyze our program and tell us that, for the most part, our program is strong, and it was especially rewarding to have our current and former students give us a favorable critique. The process has also indicated areas in our program that need attention, as outlined in the final section above. The Program Review process has compelled us to recognize these areas, analyze them, and develop specific plans to improve the Building Construction Technology program. Now we need to act upon what we have learned.

Appendix A: Outcomes

Portland Community College Core Outcomes

Communication:

Communicate effectively by determining the purpose of communication, analyzing audience and context to use appropriate language and modality; and by responding to feedback to achieve clarity, coherence, and effectiveness.

Community and Environmental Responsibility:

Apply scientific, cultural and political perspectives in understanding the natural and social world and in addressing the consequences of human activity both globally and locally by demonstrating an understanding of social change and social action.

Critical Thinking and Problem Solving:

Think critically and creatively solve problems by understanding and using various methods of reasoning and evaluating information.

Cultural Awareness:

Demonstrate an understanding of the varieties of human cultures, perspectives, and forms of expression as well as their own culture's complexities.

Professional Competence:

Demonstrate mastery in a discipline or profession at a level appropriate to program and transfer requirements through the application of concepts, skills, processes and technology in the performance of authentic tasks that enhance community involvement and employability.

Self-Reflection:

Be self-appraising in applying the knowledge and skills that have been learned, examining and evaluating personal beliefs, and comparing them with the beliefs of others.

BCT Department Outcomes (Also on the Web at www.pcc.edu/bct)

-Use efficient and safe construction skills and techniques on construction projects

-Demonstrate effective teamwork in the community and workplace

-Use computer technology to automate, organize, store, and present information used in construction activities and career advancement

-Employ effective and appropriate communication skills when interacting with trade associates, design associates, vendors, and customers

-Apply decision-making and problem-solving techniques in the community and workplace

-Practice ethical standards in business conduct and professional service

-Practice the efficient use of man-made and natural resources

BCT course outcomes are online at http://www.pcc.edu/edserv/ccg/BCT/

CORE OUTCOMES MAPPING
SAC Building Construction Technology

Mapping Level Indicators:	**Core Outcomes:**
0- Not Applicable 1- Limited demonstration or application of knowledge and skills. 2- Basic demonstration and application of knowledge and skills. 3- Demonstrated comprehension and is able to apply essential knowledge and skills 4- Demonstrates thorough, effective and/or sophisticated application of knowledge and skills.	1- Communication 2- Community and Environmental Responsibility 3- Critical Thinking and Problem Solving 4- Cultural Awareness 5- Professional Competence 6- Self-Reflection

Course #	**Course Name**	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**
BCT 100	Introduction to the Construction Industry	4	3	4	1		2
BCT 101	Principles of Construction Surveying	4	2	4	1		3
BCT 102	Blueprint Reading For Building Construction	4	3	4	1		2
BCT 103	Construction Materials and Methods I	4	4	2	1		1
BCT 105	VectorWorks	3	0	3	0		0
BCT 104	Construction Math	2	1	4	1		2
BCT 106	Hand Tool/Power Tool Use and Safety	3	2	4	3		2
BCT 120	Floor Framing	3	2	4	3		3
BCT 121	Wall Framing	3	2	4	3		3
BCT 122	Roof Framing I	3	2	4	3		3
BCT 123	Roof Framing II	3	2	4	3		3
BCT 126	Site Layout	2	1	4	0		0
BCT 127	Concrete Construction I	3	2	4	1		2
BCT 128	Exterior Finish	3	2	4	3		3
BCT 130	Construction Safety	3	1	4	0		0
BCT 132	Computer Applications for Construction	3	0	4	0		3
BCT 133	Construction Material and Methods II	4	4	2	1		1
BCT 134	Construction Scheduling	4	0	4	0		3
BCT 140	Construction Accounting	3	0	4	0		2
BCT 150	Mechanical and Electrical Facilities	3	3	4	0		3
BCT 202	Business Principles for	4	4	2	3		3

	Construction						
BCT 203	Interior Finish	3	2	4	3		3
BCT 204	Construction Estimating	3	2	4	3		3
BCT 205	Building Construction Communication Skills	4	2	2	4		4
BCT 206	Sustainable Construction Practices	2	4	2	3		4
BCT 207	Construction Job Costing	3	0	4	0		2
BCT 208	Concrete Construction II	3	2	4	1		2
BCT 211	Remodeling	4	3	4	3		1
BCT 213	Advanced Blueprint Reading	4	3	4	1		2
BCT 214	Advanced Construction Estimating	3	2	4	3		3
BCT 216	Cabinetry I	3	1	4	2		1
BCT 217	Cabinetry II	3	1	4	2		1
BCT 218	Woodworking Projects	3	1	4	2		1
BCT 219	Cabinetmaking I	2	1	3	N/A		2
BCT 220	Cabinetmaking II	2	1	4	N/A		2
BCT 221	Construction Law for the Contractor	3	3	3	2		3
BCT 222	Engineering for Constructors	3	3	4	0		2
BCT 223	Finished Stair Construction	3	2	4	3		3
BCT 224	Drywall Installation	3	2	4	3		3
BCT 225	Construction Project Management	4	3	4	3		3
BCT 226	Finish Carpentry	3	2	4	3		3
BCT 240	Construction Accounting	3	2	4	0		3
BCT 250	Construction Practice	4	4	4	3		3

Appendix B: Results of a Student Survey, given Spring 2003

This survey is designed to identify the background, goals and objectives of students currently enrolled in the Building Construction Program, and to provide feedback so the program may be continuously improved. The information you supply will be used by the BCT faculty and Advisory Committee to assess student satisfaction. To maintain your anonymity an administrative support person will assemble and type your comments.

1. What is your primary reason for attending PCC?

   22 a. Seeking a 2 year Associates Degree in **B**uilding **C**onstruction **T**echnology
   7 b. Seeking a 2 year Associates Degree in BCT with Construction Management option
   4 c. Seeking 1-Year Certificate in BCT
   11 d. Seeking a 2-year Certificate in BCT
   2 e. Seeking a 1-year Certificate in Construction Management
   1 f. Seeking a 2-year Certificate in Construction Management
   2 d. Other, specify _____*Personal Interest*

2. How did you find out about the Building Construction Technology Program?
   5 a. High School contact
   21 b. PCC schedule
   1 c. Advertisement (if so where?) _____
   0 d. Business contact
   2 e. BCT student or graduate?
   1 f. Career Fair (if so which one?) _____
   11 g. NAFTA
   ___h. Other *Web* – 2 *Word of Mouth* – 3 *Instructor* - 1

3. Are you currently working? (check all that apply)
   __**4**_ full-time __**12**_ part-time __**4**_ days __**0**_ evenings
   __**28**_ unemployed __**2**_ self-employed __**3**_ flexible hours

   If employed, what type of work? _____

4. Would you like assistance in finding a part-time job in construction while attending classes?
   Yes **25** No **20**

5. Would you like assistance in finding work after graduation?
   Yes **37** No **10**

6. How are you paying for your Portland Community College classes?
   __**5**_ Student Loans ___**4**_ Grants ___**3**_ Scholarship ___**19**_ Out of Pocket
   __**23**_ NAFTA ___ Other explain: ____*Company Split Tuition* 1
   _____

7. What is your class schedule/enrollment (check and fill in all that apply)?
   __**40**_ attending daytime classes ___ hours per week
   __**12**_ attending night classes ___ hours per week
   __**2**_ attending weekend classes ___ hours per week

8. Do you have work experience in building construction? __**17**_ yes __**14**_ no
   (briefly describe) _____
   _____

9. Do you have computer experience? __**36**_ yes __**12**_ no
   Do you use a computer at home? __**39**_ yes __**4**_ no

   What computer software programs do you have experience in? _____
   _____
   _____

10. Because many students must combine the responsibilities of work, family and school they are not able to complete the program in the prescribed time line. If you plan to complete the program over a longer period of time, please explain how long you plan to take. This information will help us schedule classes to make it possible for you to cut down your expected time line. (briefly explain) ***See Appendix***_____
    _____
    _____

11. Are you currently enrolled in your first or second year of study in the BCT or CM Program?
    __**17**_ first year BCT __**2**_first year CM __**5**_first year combined BCT/CM
    __**12**_ second year BCT __**2**_second year CM __**0**_second year combined BCT/CM

12. Has the program met your expectations? **38** Yes **4** No
    Comments: *See Appendix*_____
    _____
    _____
    _____

13. How can we improve the program to better fit your needs? *See Appendix*_____
    _____
    _____

14. Which would you prefer? _**36**_ day classes _**14**_ night classes _**3**_ Saturday classes
    Other _____
    Explain why _____
    _____

15. What type of construction work do you plan to do after graduating from the BCT program?

    _**27**_New Construction _**28**_Remodeling _**4**_Cabinetmaking

    _**14**_General Contracting _**6**_Commercial Construction _**2**_Estimating

_**7**_Project Management _**0**_ Construction Supply Sales _**5**_Sub-Contractor

If sub contractor please describe the specialty area _____

Other _____
_____

16. Do you intend to apply for a State of Oregon Contractor's License in the future?
32 Yes **13** No

17. Do you intend to continue your education by attending Oregon Institute of Technology classes to achieve a Bachelor of Operations Management? **9** Yes **32** No

18. Do you feel your math, writing, and reading skills were adequate when you entered the BCT program? **36** Yes **10** No

19. Have your math, writing, and reading skills improved while in the program? **31** Yes **8** No

If yes, to what do you attribute the improvements? _____
_____

20. What classes, if any, would you like to see added to the Building Construction curriculum?
See Appendix_____
_____
_____

21. How do you rate the faculty in the BCT program?

__**27**__Excellent
__**16**__Good
__**0**__ Adequate
__**1**__ Poor

Comments:_____
_____
_____

22. How do you rate the BCT Program?

__**21**__Excellent
__**19**__Good
___**2**_ Adequate
___**1**_ Poor

Comments: _____
_____

23. How do you rate the program's construction equipment (tools, machinery, etc.)?

__16__ Excellent
__18__ Good
___3_ Adequate
___0_ Poor

24. Do you have any other comments that might help us improve the Building Construction Technology program? ***See Appendix***

Survey Appendix – Written Comments

Number 10: Do you plan to take longer than 2 years to complete the program?

- NAFTA only paid for 2 years. I'd like to have my Associates Degree but I am going to have to pay out of my pocket.
- Would like to be done in 2 years but will probably take 2 ½ years.
- I hope to be done in 2 years. If I am working then 3 years.
- 3 years do to family, work, etc.
- 2 ½- 3 years.
- 3 years.
- 4 years, maybe 3.
- I plan on finishing by early to late 2005.
- 2 ½ years because of required math and writing.
- It took 3 years to get a 2 year certificate.
- 3 years.
- Complete December 2003.
- Need open classes at summer to help finish the program sooner.
- I plan to study full time and complete the program ASAP.
- One extra term.
- I might continue with the management program once I start working and would do 1-2 classes a quarter at night.
- 2 ½ years.
- 2 ½ years.
- I am only able to take 1 or 2 classes per term. More evening/weekend classes would be very helpful.
- I may start working days so it would be beneficial to have the core BCT classes available evenings or weekends.
- 1 ½ years.
- 2-2 ½ years.
- My only opportunity for classes is in the morning before noon.

Number 12: Has the program met your expectations?

- Remodeling class should have better training about remodeling bathrooms, kitchens, etc.
- It is going well.
- The way some things are taught make it very hard to learn.
- Have no completed the program so I cannot give an accurate answer yet.
- This term one of the teachers is obviously overwhelmed and it shows in the two classes I have with him. He is disorganized and unprepared. The quality of the classes is lacking.

- Staff great and experienced. Have had Steele, Heye, and Garrison. I think the schedules could be different. Framing is offered one way and the class structure isn't the same.
- I've learned more in the last year than in the last 5 years on the job. This program is great.
- Learned many things and opened my eyes.
- It caters around residential. I want to learn more commercial application.
- It helps me to have a better understanding of what building construction is all about. I really enjoy having something I can do at my home and probably as a trade.
- Very thorough and well planned.
- This program helps me with construction today.
- Each course provides me different experience in building construction field and learn more new information in building construction.
- A few hiccups but overall a good solid program with a good group of instructors.
- I am very glad that I am taking this program. I learned a lot of things in this program.
- I feel I am learning many things in different areas in the construction field.
- I need more practice and real projects.
- In general this program has flowed well. However, I am not happy that there are no classes about plumbing or electrical.
- I have learned much this year and things I thought I would never know.
- Excellent instructors.
- I am learning a great deal of practical knowledge in relation to the construction industry as well as useful skills to be used in industry.
- Well organized and interrelated.

Number 13: How can we improve the program to better fit your needs?

- Perfect now.
- Classes year round instead of having to wait a term or 2 to get a class.
- More classes using construction software.
- Needs to be at school. Every class I'm in says we need to go somewhere and do this. I come from Gresham and out of school activities are out of the question (maybe bus).
- Classes more often than once a year.
- Need more teachers and offer more flexibility in required classes and times offered.
- My current work schedule now allows me the flexibility to attend daytime schedule.
- More hands on teaching and less lectures. I just wish you could keep the B-FIT program because that is the program that got me setting my goals to finish my 2 year program.
- More employment opportunities.
- Maybe offer some more night classes.
- Offer classes during the summer.
- Touch on electrical and plumbing.
- Update computers that apply to BCT.
- The codes class was the only one that did not meet expectations. The program was terrible and I wish we would have spent some time in class talking about some of the codes and terminology (the professor was very helpful – not his fault). The rest of the program has been outstanding.
- I would like to see an improved job placement program. There seems to be no coordinated effort to place students in part-time or full-time. Work at this point in time and I believe this should be the #1 priority for improving this program.
- Try to put all the classes in the order for every term so students can take it all in that term.

- More BCT classes offered during summer term.
- To offer more real projects.
- Add some classes about electrical and plumbing.
- More weekend and evening classes.
- Set strict limits on how many people can be in a class.
- Schedule some of the shorter classes in the afternoon instead of evening or Saturday: Tool safety, print reading, surveying, etc.
- Maybe a BBQ once a term/year with vegetarian fair for those who are so inclined.
- More class offerings per term, classes fill too quickly.
- Some classes could be held at night so I could work and then attend classes to finish an Associates Degree.
- Some of the classes need more time such as surveying.
- Offer basic electrical and plumbing courses.
- Offer classes on energy efficiency.

Number 20: What classes, if any, would you like to see added to the Building Construction curriculum?

- Software (isqft, timberline, Microsoft project, win estimator). Basic class for students without construction background with terminology, sequence of events, etc.
- I'd like to see more remodeling type classes specific to remodeling, tearing up floors, tearing out walls, and tearing out and rebuilding. The current remodeling class appears to be geared more towards business. I'd like to see the framing class structured differently. It doesn't make sense to have M/T and W/TH. If it's really M-TH until you get the walls and floor in. Perhaps structure wall/floor M-TH for half the term and roof for M-TH second half of term.
- A class of general construction education. One where the curriculum teaches things such as welding, basic wiring, plumbing, etc.
- Heavy equipment drivers. Training certificate licenses.
- A basic electrical class and plumbing.
- Tile instruction, wood planning, electrical.
- Cabinetry.
- Electrical and plumbing.
- General education on electrical, plumbing. I am surprised they are not part of it.
- Longer drywall, finish carpentry and stair classes.
- More construction math classes.
- Tile, expanded carpentry.
- Carpentry.
- Cabinet making or cabinetry.
- I think there is already a well rounded amount of classes to choose from and you have basically involved all aspects of construction.
- A general plumbing and electrical class. It's hard to work in construction and not know some plumbing and electrical.
- Tile and masonry.
- Perhaps a remodeling class that focuses on areas of construction relating more towards electrical, plumbing, or other areas not covered in other construction classes.
- More time in the classes.
- Electrical, plumbing, and masonry courses.

- Energy efficiency construction.

Number 24: Do you have any other comments that might help us improve the Building Construction Technology program?

- The new teacher needs more experience.
- Offering a class more than once a year would be helpful and/or more than once in the term. Scheduling conflicts would be less.
- Keep the courses on campus or at home.
- Improve the remodeling format, add things such as how to add a door/window to a blank wall, basically more remodeling specifics.
- More hands on teaching. Keep B-FIT, it helps more people get into an apprenticeship faster than just going for a 1 or 2 year college certificate or degree.
- Remodeling class we should be doing more remodeling a kitchen or bathroom. I like to see more tile work, countertop walls, floor, etc.
- Yes, I'm taking the remodeling class now and we are only building cabinets. I would like to learn how to do ceramic tiles, tear down walls, add-ons, etc. I'm in cabinetry 2 now and with this remodeling class it seems like I'm making cabinets 4 days a week.
- Outside weather is a problem at times.
- The classes are huge (we all know that) and there is not enough space for everyone to get enough hands on practice. Some of the tolls are a bit old but work fine. The program welcomes so many students and it needs more money. Who decides who gets what at PCC? Show them this survey.
- Have Kurt and John teach more classes.
- I went to learn more about decorative concrete and building curve decks.
- Jobs, jobs, jobs.
- I need the Material and Method class for the summer.
- While I realize money is a factor, I think classes should be smaller so that we can all get an opportunity to participate in all hands-on assignments.
- Excellent program for myself.

Appendix C: Full-Time Building Construction Technology Staff

Richard Edwards

Rich has a strong background in construction-related computer applications including Timberline Accounting and Estimating Software, Primavera SureTrak, P3 and Expedition. Rich has worked as a Network administrator, Job Cost accountant, Scheduler and Consultant to the Construction Industry. He has worked on projects as varied as High Schools, Ski Resorts, Tenant Improvement and Residential. He has a Bachelor of Science in Building Construction from the University of Washington.

Training:
Primavera SureTrak
Primavera Expedition
Primavera Project Planner for the Enterprise
Microsoft Certified Systems Engineer

Certifications:
Primavera systems; Authorized Trainer of Expedition

Journal and Publications:
This Old House <toh_webmaster@timeinc.com>
AGC SmartBrief <agc@smartbrief.com>
"Kitchen & Bath Design News" kbdn@cygnuspub.com
CSE (Consulting, Specifying Engineers) Newswatch <newswatch@email.csemag.com>
"McGraw-Hill Construction" McGraw-Hill_Construction.UM.A.58.265@mm10.net

Phone: 503-614-7475
Email: redwards@pcc.edu

Kirk Garrison

Kirk has 15 years experience in commercial and residential construction. He has a strong background in concrete work, interior finish, and framing. Kirk holds BA Degrees in English and History from Brigham Young University, and a MA in History from Portland State University.

Teaching Experience:
Associated General Contractors, part-time instructor
Portland Youthbuilders
Portland Community College (part-time 1997-2001; full-time since 2001)

Training:
World of Concrete Training—Decorative Concrete
Fine Woodworking Seminars—Veneering
ACI Seminars—Concrete Repair

Journal and Publications:
Journal of Light Construction
Concrete Construction magazine
Fine Woodworking magazine

Phone: 503-614-7403
Email: kgarriso@pcc.edu

Spencer Hinkle, CKD

Spencer has 20 years experience in the remodeling and cabinetry industry. He recently authored a Construction Mathematics book that is used as a textbook at PCC and other

schools. He received the Staff Excellence Award in 1998 from US Bank and Portland Community College. Spencer holds an Associate Kitchen and Bath Designer certification; he earned a two-year Certificate in Building Construction Technology from PCC and a Bachelor of Art from the University of South Florida.

Association Memberships:
Board Member of the Associated General Contractors
Board Member of the Oregon Building Congress
Member of The Oregon Remodelers Association
Member of The National Kitchen and Bath Association
Member of the Architectural Woodworking Institute

Training:
One-Year Auto CAD Training
Training in VectorWorks CAD
Kitchen Documentation Course—NKBA
Kitchen and Bath Lighting Course—NKBA
Blum Hardware School (2 Day Seminar on Cabinet Hardware)

Certifications:
Certified Kitchen Designer—NKBA
Associate Kitchen and Bath Designer—NKBA

Journal and Publications:
Fine Woodworking
Interior Design
Modern Woodworking
Journal of Light Construction

Phone: 503-614-7405
Email: shinkle@pcc.edu

Bob Steele

Bob has 25 years experience as an Oregon Residential Construction Contractor and 7 years as a High School Instructor. He holds Oregon and California Standard Teaching Credentials, a Bachelor of Science form California State Polytechnic University Pomona, and Teacher Certification from California State University Fullerton.

Training:
One year teacher certificate training
National Home Builders Conference

Journals and Publications:
Builder
Custom Home
Woodworkers Journal
Journal of Light Construction
Fine Woodworking

Certifications:
Oregon and California Standard Teaching

Association Memberships:
Homebuilders Association Portland Metro Chapter