

Candidate Bulletin of Information
Certified Commissioning Professional™ Program



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THE BUILDING COMMISSIONING ASSOCIATION

The Building Commissioning Association (BCA) promotes building commissioning practices that maintain high professional standards and fulfill building owners' expectations. The BCA is dedicated to developing a common, industry-wide understanding of what constitutes effective building commissioning. Our goal is to achieve high professional standards, while allowing for diverse and creative approaches to building commissioning that benefit our profession and its clients. For this reason, the BCA focuses on identifying critical commissioning attributes and elements, rather than attempting to dictate a rigid commissioning process.

The BCA was initially formed through the efforts of building commissioning professionals in the Pacific Northwest. Organized efforts to advance building commissioning in that region began to take shape in 1996 and led to the formation of the Northwest Building Commissioning Collaborative in 1997 and later the BCA-Northwest in May 1998. In April 1999, the BCA-Northwest became the BCA, which has expanded into a national professional association representing the interests of the building commissioning industry across the country.

THE BUILDING COMMISSIONING CERTIFICATION BOARD

The Building Commissioning Certification Board (BCCB) was formed in 2004 as an administratively independent arm of the BCA for the purpose of recognizing building commissioning professionals who meet the standards of the BCA. The BCCB offers certification to individuals who satisfy educational and experience requirements and who also pass a national certification examination. Successful candidates are awarded a certificate and have the right to use the Certified Commissioning Professional™ (CCP™) designation. The BCCB also recertifies certificants who demonstrate evidence of continued professional competence.

The BCA retained Knapp & Associates International, Inc. (K&AI) of Princeton, New Jersey to provide assistance in the initial development of the certification program, including the certification examination. K&AI is a consulting firm that assists organizations in developing and maintaining professional credentialing programs. The BCCB has contracted with Schroeder Measurement Technologies, Inc. of Dunedin, Florida for test administration and related testing services.

The development of the CCP™ Program was funded by the Northwest Energy Efficiency Alliance, a non-profit group of electric utilities, state governments, public interest groups and efficiency industry representatives working to make affordable, energy-efficient products and services available in the market place.

GENERAL INFORMATION

HOW WAS THE CERTIFICATION PROGRAM DEVELOPED?

The eligibility requirements and examination materials for the CCP™ certification program were developed based on a study of the current state of knowledge and practice in building commissioning. A survey of expert building commissioning professionals was conducted to define the body of knowledge used in the building commissioning process and the job responsibilities and tasks carried out by building commissioning professionals. A representative panel of building commissioning experts reviewed the results of the survey. The data from the survey were used to determine the body of knowledge and the content areas appropriate for the examination. The content of the examination is based on this body of knowledge. A detailed content outline can be found on pages 9-17. Additionally, a member survey was conducted and a national consensus process was followed in the developing the program.

The examination questions are written by practicing building commissioning professionals and are reviewed by a panel of experts prior to being selected for the examination. After the examination, the questions are analyzed statistically to identify any hidden flaws. Questions that appear to be flawed are discussed by the BCCB Examination Committee to determine if they should be deleted from scoring entirely or if credit should be given for more than one answer. After these issues are resolved, the examination is scored.

The examination question pool for the CCP™ certification program will be updated on a regular basis to reflect current practice in building commissioning. Individual questions that have been shown by statistical analysis to be unclear or unfair will be revised or deleted from the pool.

The CCP™ examination has been designed to meet testing industry standards for validity and reliability.

Validity refers to the degree to which the content of the examination reflects the knowledge required to competently perform the responsibilities of a building commissioning professional.

Reliability refers to the accuracy of the examination scores, i.e., the degree to which the examination scores are free from measurement error.

WHAT IS THE PURPOSE OF THE CERTIFICATION PROGRAM?

The purposes of the CCP™ certification program are to:

- establish nationally recognized standards of knowledge and experience for building commissioning practitioners;
- assess the level of knowledge and skills demonstrated by building commissioning practitioners in a valid and reliable manner;
- encourage professional development in the field of building commissioning;
- recognize formally individuals who meet the requirements set by the BCCB; and
- serve building owners and the public by encouraging high quality building commissioning services.

The BCCB, with the assistance and advice of many practitioners in building commissioning, has attempted to develop a credential that will recognize expertise in the profession with the goal of improving professional standards in building commissioning. However, no certification program can guarantee professional competence. Moreover, given the constant changes in the field of building commissioning, the BCCB cannot warrant that the examination materials will at all times reflect the most current state of the art, despite the diligent effort undertaken to keep the examination up to date. The BCCB welcomes constructive comments and suggestions from building owners, the public and the profession.

IS THE CERTIFICATION PROGRAM DESIGNED FOR A PARTICULAR TECHNICAL SPECIALTY?

Building commissioning professionals who are eligible for the CCP™ certification program will have achieved technical expertise in one or more types of building systems. However, the examination focuses on the *process* of building commissioning and the *management* of building commissioning projects. Therefore, CCP™ certification is appropriate for all qualified practitioners, no matter their area of specialization: mechanical/HVAC, electrical, building envelope, fire and safety, etc.

WHAT ARE THE BENEFITS OF CCP™ CERTIFICATION?

Building commissioning practitioners who achieve CCP™ certification can experience one or more of the following benefits:

- verification of their expertise by an independent organization – a way to prove that they have the knowledge and skills needed for the job

- professional growth and development
- enhanced professional credibility
- greater job opportunities

The potential benefits of certification for employers of building commissioning professionals include:

- increased productivity
- less training time needed to bring new employees up to speed
- increased client referrals from satisfied building owners and managers
- a competitive advantage in promoting services to clients
- an assurance of a level of qualification for new job applicants

Finally, the potential benefits of the certification program for building owners and managers include:

- greater ease in identifying a qualified building commissioning professional or firm
- more confidence in the quality of building commissioning services provided
- consistency for comparing service providers

WHAT IS THE PROCESS FOR ME TO BECOME CERTIFIED?

Certification is a three-step process:

1. You must submit a completed CCP™ program application, request the required supporting documents and pay the required application fee.
2. The BCCB must approve your application and advance you to candidacy in the certification program.
3. If advanced to candidacy, you must pass the certification examination.

You will find out more about each of these steps in the next section of this Candidate Bulletin.

GETTING READY FOR THE EXAMINATION

AM I ELIGIBLE FOR CERTIFICATION?

To be eligible for certification you must have a high school diploma, GED, or higher level degree and also have a minimum of thirty-six (36) continuous months of experience as a commissioning services provider in a lead project role within the five (5) years, preceding the date of your application. In addition, you must satisfy the requirements for experience outlined on the next page, based on the highest educational degree you earned.

CCP™ Program Experience Requirements

Highest Degree Earned	Experience Requirements
All Levels of Education	<ol style="list-style-type: none"> 1. Have served as the lead commissioning provider for three qualifying projects³, from the design phase through the completion of the construction phase.² 2. Buildings commissioned must total a minimum of 150,000 square feet and \$30,000,000 construction cost.²
Four-year undergraduate degree or higher in a building sciences field ¹	<ol style="list-style-type: none"> 1. Have served for three continuous years as a commissioning provider, acting in a lead role.
Four-year undergraduate degree or higher in a non building sciences field ¹ <i>or</i> Two-year undergraduate degree in a building sciences field ¹ <i>or</i> Completed an apprenticeship program in a building sciences field ¹	<ol style="list-style-type: none"> 1. Have five years of building-related experience, and have served for three continuous years as a commissioning provider, acting in a lead role.
Two-year undergraduate degree in a non building sciences field ¹	<ol style="list-style-type: none"> 1. Have seven years of building-related experience, and have served for three continuous years as a commissioning provider, acting in a lead role.
High School diploma or GED	<ol style="list-style-type: none"> 1. Have 12 years of building-related experience, and have served for three continuous years as a commissioning provider, acting in a lead role.

¹ Fields of study in building science include mechanical engineering, electrical engineering, construction science, construction management, architecture, and other majors/fields of study designed to train people for careers in the building industry.

² At any educational level, the completion of the BCA Commissioning Provider training course or the University of Wisconsin Commissioning training course reduces the experience requirement by one project, the total commissioned square footage requirement to 100,000 square feet, and the construction cost to \$15,000,000.

³ A qualifying project is defined as a commissioning project where the applicant has actively and substantially participated in the following phases of the project: Projects where the applicant has not participated at this mandatory level should not be submitted.

Construction document level review	Commissioning specification development	Installation verification document development
Master list of equipment and systems development	Functional performance test document development	Final commissioning plan development
Equipment installation verification on site	Functional performance testing on site	Final commissioning report development

If you meet the requirements outlined on the previous page, you should consider applying for certification.

HOW IS AN APPLICANT ADVANCED TO CANDIDACY?

After the BCCB confirms your eligibility, your complete application is reviewed by the members of the Certification Board. The Board will evaluate your project experience and documentation, as well as your employer and client references, and make a final determination of your status. Applicants who substantially meet the standards of the BCCB are advanced to candidacy and approved to take the certification examination.

HOW MUCH DOES CERTIFICATION COST?

The application fee for the CCP™ certification program for current members of the Building Commissioning Association is \$350.00. The application fee for all other applicants is \$550.00. The exam fee is \$150 and is refunded if the BCCB finds that you do not qualify to sit for the exam.

Payment must be made by banker's check, money order, check drawn on an authorized company account, personal check, or credit card, and must be made payable to the BCCB. **NO OTHER FORM OF PAYMENT – INCLUDING CASH – WILL BE ACCEPTED.** Failure to submit the full fee in one of the acceptable formats will result in the rejection of your application.

The application fee is non-refundable and is incurred upon receipt of your application by the BCCB. However, your application will be returned to you, and your fee refunded, less a \$50.00 non-refundable processing fee, if one of the following circumstances applies:

- You fail to meet the basic eligibility requirements at the time of application;
- Your application, including all required supporting documentation, is incomplete as of the application deadline; or
- The BCCB has not received your entire fee by the application deadline.

HOW DO I APPLY?

You must complete the application form and select a date and location for the examination. Refer to the separately published Test Administration Schedule for available examination dates and locations. Please read all of the information included in the Candidate Bulletin and follow all instructions on the application carefully.

Copies of this Candidate Information Bulletin, the application form, and the Test Administration Schedule may be downloaded from the Internet at www.bcxa.org. Only the official application form or a copy of it can be accepted. All applications must be type-written (or word processor) for clarity.

Payment of the application fee must accompany your application. If you wish to pay by credit card, you must supply your credit card information on the application.

All applications must be received by the deadline established for the test date for which you are registering. When mailing your application, please allow sufficient transit time or consider using an express mail service. Applications received after the deadline will be rejected and returned to you, and your fee will be refunded less the \$50.00 nonrefundable portion.

Once the Certification Board has reviewed your application, you will be notified by letter whether your candidacy has been approved or denied. In the case of a favorable decision, you will receive an Admission-to-Test Notice approximately two (2) weeks before the date of your examination. The Notice will contain your identification (ID) number, as well as specific information about the date, time, and location of your examination session and other important information about the examination. *Please keep a record of your ID number as you will need it after the examination if you have any inquiries about your examination scores.*

If you lose your Admission-to-Test Notice or have not received it by seven (7) days before the examination date, please contact the BCCB so that another notice can be sent to you.

You must bring your Admission-to-Test Notice to the examination site on the examination date. **You will NOT be admitted without this document.** You will also need to bring two additional pieces of identification:

1. A government-issued photo ID, such as your driver's license or passport; and
2. Another form of ID that has your signature, but need not have your picture.

WHEN IS THE EXAMINATION GIVEN?

The examination will be given on the dates and at the locations listed in the separate Test Administration Schedule. You may select the date and location that is most convenient for you.

WHAT IS THE FORMAT OF THE EXAMINATION?

You will take the examination in a single, two- -hour session. The examination consists of 125 multiple-choice questions. Each question contains four options or choices, only one of which is the correct or best answer. You will be asked to select the correct or best answer from these options. The examination will include some commissioning scenarios on which a set of two or more questions is based. Sample questions can be found on page 18.

WHAT DO I NEED TO KNOW FOR THE EXAMINATION?

Test Content Outline

The following pages include a detailed outline of the major content areas and commissioning tasks and skills evaluated in the examination, with an indication of the approximate number and percentage of examination questions devoted to each of the five major content areas.

Please note that questions from the various content areas will be mixed throughout the examination. The questions will NOT be presented in content area order on the examination.

CCP™ Program Test Content Outline

COMMISSIONING PROCESS

Pre-Design

5 Questions, 4% of Exam

1. Participate in the development of the Design Intent Document

1.a. Participate in drafting the Design Intent Document (DID).

1.b. Interview the owner, design team, operation and maintenance staff, and end users to gather information from each group about the requirements, desired options, and concerns related to building use.

1.c. Facilitate group exercise with the owner, design team, operation and maintenance staff, and end users to gather information from each group about the requirements, desired options, and concerns related to building use.

1.d. Review the Design Intent Document to verify content and provide comments to design team.

2. Develop a preliminary commissioning plan

2.a. Collate the design narrative and basis of design.

2.b. Identify the team members and the roles and responsibilities of team members and contractor as they relate to the commissioning effort.

2.c. Identify the testing and verification methodology, including the sampling method.

2.d. Identify the systems that will be commissioned and the acceptance criteria for systems and equipment.

2.e. Acquire the review and approval of the commissioning plan from the design team and owner's representative.

3. Review program documents

3.a. Review the program documents for quality and the capability to meet the Design Intent Document, commissionability, constructability, and maintainability issues and provide comments to the owner and/or design team.

4. Review design development documents

4.a. Review the designer's specifications and drawings to ensure that the design development documents follow the owner's wishes and good design practices and provide comments to the owner and/or design team.

5. Develop commissioning specifications

5.a. Develop commissioning-related specifications sections and narrative, in formal written format, based on the preliminary commissioning plan and the project documents.

5.b. Clearly define the roles and responsibilities of the commissioning team, including the design team, owner, and commissioning provider.

5.c. Define the commissioning process and contractor's roles and responsibilities.

5.d. Identify the scope and expected outcomes of the commissioning process.

5.e. Define the lines of communication.

5.f. Define the requisite conditions for the project completion/acceptance.

5.g. Meet with the maintenance staff to determine the level of training needed by the staff.

5.h. Include training requirements that are sufficient to prepare the staff to maintain, operate, and troubleshoot equipment and systems.

5.i. Submit commissioning specifications to the design team for review.

6. Review final construction documents

6.a. Review the final project documents to verify that all commissioning-related issues have been included and meet the design intent.

6.b. Conduct the final review to verify that the document is clear and the commissioning specifications are referenced correctly.

6.c. Verify the testing/acceptance criteria.

6.d. Prepare a document review letter to the design team and owner's representative.

7. Pre-bid meeting

7.a. Attend the pre-bid meeting to present information on the commissioning process, answer any questions regarding the process, and explain the unique contribution of the commissioning process.

8. Develop contractor checklist

8.a. Create a construction checklist to verify equipment delivery, storage, equipment and systems installation, start-up, and readiness for functional testing.

8.b. Include equipment information from design documents (including unit number, location, rating, capacity, etc.)

8.c. Include spaces to document verification that associated ducting, wiring, and piping has been included and tested.

8.d. Include spaces to document verification of accessibility and maintainability of equipment.

8.e . Include spaces to document verification that the installation is per project documents and manufacturer's requirements.

8.f . Include spaces to document verification of completion of the construction checklists by the contractor.

Construction

66 Questions, 53% of Exam

9. Review submittals

9.a. Once the project is bid and the successful contractors have been identified, acquire and review the submittals on all commissioned systems for consistency with owner requirements.

9.b. Verify that information needed for the installation and start-up is included.

9.c . Identify and quantify issues or conflicts discovered in a written report to the contractor, design team, and owner's representative.

10. Create a master list of commissioned equipment and systems that were defined in the statement of work

10.a . Create a master list of equipment by part number, and location.

10.b . List all systems to be commissioned (i.e., HVAC, electrical, fire/life safety, lighting controls, etc.) based on the final design, addendum, and submittal information.

10.c . List equipment parameters and associated equipment (i.e., cfm, gpm, amps, volts for AHU; lumens, volts, watts for light system; attenuation, NEXT, resistance for data cables; etc.).

10.d . Review control dependencies (i.e., sequence of operations information, etc.) and, if discrepancies are noted, bring them to the attention of the design team for resolution.

10.e . Identify all modes of operation and any integrated system relationships.

10.f . Integrate these lists into the final commissioning plan.

11. Create final commissioning plan

11.a . Create the final commissioning plan that outlines the entire commissioning process including the roles and responsibilities as outlined in the specifications.

11.b . Update and adjust the commissioning plan to support the DID.

12. Conduct initial on-site commissioning coordination meeting

12.a. Develop preliminary documents and agenda.

12.b. Conduct the commissioning coordination meeting.

12.c. Introduce the commissioning process to those who are unfamiliar.

12.d. "Sell" commissioning and work for buy-in by all involved.

12.e. Review the commissioning plan and process.

12.f. Identify the commissioning team members and their roles and responsibilities.

12.g. Present the schedule and deliverables.

12.h. Clarify the issues raised by contractor.

12.i. Identify the modes of communication and reporting structure to be used in the commissioning process.

13. Develop functional performance documents

13.a. Review specifications and manufacturer's documentation: and submittal information.

13.b. Add blanks or check boxes to enter actual measured / witnessed information.

13.c. Compare information to the design and submittal data and to the design team's acceptance criteria.

13.d. Develop functional test criteria that take the systems through all operational modes and failure modes.

13.f. Prepare and submit a binder of all functional test procedures for review and comment to the owner.

14. Monitor contractor start-up and test

14.a. Review contractor-conducted start-up test results to confirm that the contractor has completed all pre-test activities.

14.b. Compare the contractor's data and observations to the manufacturers start-up and installation information and to the acceptance criteria and knowledge of proper equipment and system operation.

14.c. Analyze data with respect to associated equipment.

14.d. Review the start-up documentation to determine the level of system readiness for continuation of the commissioning process.

14.e. Witness contractor startup procedures.

14.f. Prepare and submit report to owner.

15. Conduct ongoing commissioning coordination meetings

15.a. Conduct regularly scheduled on-site commissioning meetings once construction begins.

15.b. Prepare meeting agenda and invite participants.

15.c. Conduct more frequent meetings as the project approaches completion.

15.d. Keep meeting minutes and distribute them to the participants.

15.e. Schedule and coordinate start-ups, observations, testing, and other commissioning process activities.

15.f. Coordinate the commissioning process across all systems.

16. Conduct installation verification

16.a. Perform site walks to verify all equipment installations.

16.b. Using the construction checklist, verify the information recorded and the contractor's progress. Verify that equipment, systems, and assemblies are properly installed and ready for functional testing where applicable.

16.c. Record commissioning issues on a commissioning issues list and their resolution status.

16.d. Periodically prepare and submit a commissioning issues report to the owner.

17. Review balancing report

17.a. Review the TAB report to include conformance to project document requirements and standard practices.

17.b. Review the balancing data and evaluate for completion.

17.c. Prepare and submit a report to the owner.

18. Verify balancing report

18.a. Verify that previous issues, if any, were resolved.

18.b. Verify that measured data are within design tolerances.

18.c. Test or witness testing of a sample of TAB readings and compare data with the balancing report.

19. Conduct functional performance tests

19.a. Complete a review of all construction checklists, start-up, and installation verification forms prior to functional testing.

19.b. Conduct or witness the functional tests performed in accordance with approved test procedures.

19.c. Test or witness tests of interrelationships between equipment and systems, such as "comfort in space" testing that includes more than one system.

19.d. Conduct tests to simulate as many potential modes of operation as will fit within the commissioning scope of work for active systems such as HVAC, controls, generators, etc.

19.e. Conduct performance-based tests for passive systems and assemblies such as roofs, walls, acoustical ceilings, etc.

19.f. Conduct some tests using observation and random verification.

19.g. Record issues on the commissioning issues list.

20. Re-testing and issue resolution

20.a. Verify that issues have been resolved through visual observations, physical measurements, or certificates of completion from the contractor.

20.b. Verify that functional testing failures have been resolved, either through retesting or witnessing a successful repeat of the functional test.

20.c. Work with the members of the design team to develop and implement appropriate design changes where needed.

20.d. Prepare and submit a revised commissioning issues list to the owner, showing issues resolved, actions taken by whom, and dates resolved.

20.e. Propose solutions to the owner when issues have not been resolved.

20.f. Address lessons learned with the contractors at next commissioning coordination meeting.

21. Review contractor record documents and operation and maintenance manuals

21.a. Review documents in parallel with the design team.

21.b. Conduct ongoing reviews of documentation as documents become available.

21.c. Review record drawings.

21.d. Review that documentation is complete and adequate for use by the staff charged with the operation and maintenance of the facility (including parts, service, routine maintenance, and emergency procedures).

22. Organize and coordinate training of the operation staff

22.a. Verify the level of training needed by staff and make sure that training requirements are sufficient to prepare staff to maintain, operate, and troubleshoot equipment and systems.

22.b. Using the operation and maintenance manuals as guides, evaluate the training plan and syllabus.

22.c. Approve the plan and syllabus or recommend improvements.

22.d. Attend training sessions to verify that training is given in sufficient detail and clarity to be understood and remembered by staff.

22.e. Gather training evaluations and recommend to the owner if further training is required.

22.f . Provide training for operation and maintenance staff.

23. Develop maintenance, operation, and/or energy management manuals

23.a. Develop maintenance, operation and/or energy management manuals (technical systems manuals) to assist the owner, and be used by the operation and maintenance staff, in operating and maintaining the facility in an effective, safe, and efficient manner into the future.

23.b. List equipment information (i.e., nameplate information, filter and belt sizes).

23.c. List the manufacturer's recommended maintenance procedures and frequency and the manufacturer's recommended replacement frequency.

23.d . List supplier's name, address, and warranty dates.

23.e . Develop an occupant system use manual.

24. Re-commissioning management manual

24.a. Develop a document that outlines the process and procedures that will be used to re-commission the facility in the future.

Occupancy and Operations

16 Questions, 13% of Exam

25. Final report

25.a. Prepare a final report at the close of the project based on the commissioning plan that includes (1) all previously generated commissioning documentation (including, but not limited to, all official correspondence, site visit reports, functional testing reports), and (2) a project summary that identifies any unresolved issues and makes further recommendations.

25.b. Develop and include an executive summary describing the systems as built and installed, a menu /table of contents, and index.

25.c. Store the final report electronically on CD for ease of reference and duplication.

26. Seasonal testing

26.a. Perform functional testing or witness testing to prove functionality during alternate seasonal peak load conditions to verify that the system will both heat and cool sufficiently.

26.b. Prepare a summary of seasonal testing for addition to the final report.

27. Near warranty-end testing

27.a. Verify that equipment is still functioning properly several months after installation.

27.b. Conduct testing near warranty end (typically 10 months past the start of the warranty period).

27.c. Conduct a subset of the original test plan to identify potential issues prior to the expiration of the warranty period.

27.d. Interview maintenance staff and occupants to get input regarding any issues or quirks.

27.e. Identify any issues that should be resolved prior to warranty end and report to the owner for submittal as a warranty item to the contractor.

27.f. Prepare summary of near warranty-end issues for addition to the final report.

28. Post-occupancy review

28.a. Review the facility operation in light of actual facility use.

28.b. Work with maintenance staff to resolve issues and develop solutions.

28.c. Conduct an occupant survey or interview, including a "lessons-learned" session.

28.d. Prepare summary of "lessons learned" for addition to the final report.

Additional Commissioning Related Content

15 Questions, 12% of Exam

29. USGBC LEED Certification

As it relates to Fundamental and Additional Commissioning only.

30. BCA Essential Attributes

31. Construction document process (protocol, RFI, submission, shop drawings, etc.)

32. ASHRAE Guidelines

Sample Questions

Please note that the difficulty of these sample questions may not be representative of the overall difficulty of the examination.

1. What document is most helpful for identifying the acceptance criteria needed when writing functional test procedures?

- A. Architect's program
- B. Basis of design
- C. Commissioning plan
- D. Design intent

2. The commissioning authority has been given a complete set of project drawings and specifications. While reviewing submittals, they discover a technical error. One of the commissioning authority's first actions should be to

- A. ask the mechanical contractor to correct error
- B. ask the supplier to make changes
- C. document the error and inform the commissioning team
- D. reject the submittal with comments on errors

3. What documents should be used to develop functional performance tests?

- A. Owner's design intent, project specifications, industry guidelines, and approved submittals
- B. Manufacturer's listing of inspections and testing used on factory testing and acceptance
- C. Test procedures used on the previous project for similar equipment
- D. The commissioning plan on the last project completed for this client

4. A test and balance report has been submitted without documentation of domestic hot water recirculation readings. What action should the CA take to address this omission?

- A. Reject the report for being incomplete.
- B. Review the specification to determine if domestic water systems are included in the test and balance scope.
- C. Return the report to the contractor with a request to complete the domestic hot water recirculation balance.
- D. Request that the mechanical contractor submit a test report for the domestic hot water recirculation system.

5. Functional performance testing of the specified components has been successfully completed. What is the next step in the commissioning process?

- A. Submit the final commissioning report.
- B. Perform owner training.
- C. Test inter-relationships between systems and subsystems.
- D. Recommend beneficial occupancy.

Answer Key: 1. D 2. C 3. A 4. B 5. C

References

The following is a list of references that may be helpful in reviewing for the examination. This list is intended for use as a study aid only. The BCCB does not intend the list to imply endorsement of these specific references, nor are the examination questions necessarily taken from these sources.

Organizations:

BCA

ASHRAE

US Green Building Council

Portland Energy Conservation Inc.

Suggested Reading:

Building Commissioning Handbook, 2nd Edition

ASHRAE Guideline 1

US Green Building Council Manual – The LEED Green Building Rating System, Version 2.1

- Energy & Atmosphere – Prerequisite 1; Fundamental Commissioning
- Energy & Atmosphere – Credit 3; Additional Commissioning

Suggested Training:

Attend the Building Commissioning Association's Professional Development Programs (for a complete schedule of dates and locations, www.bcxa.org)

HOW DO I PREPARE FOR THE EXAMINATION?

The BCCB offers the following suggestions for preparing for the examination:

1. Review the test content outline and, for each content area, ask yourself the following questions:

- Do I have a good understanding of the content area?
- Do I use the knowledge and skills represented by this content area regularly in my practice?

Plan your studying based on your answers to these questions. For example, for content areas you have a good understanding of and use every day, you may only need to do a quick review to prepare for the examination, whereas for areas with which you are less familiar, you may decide that you need more in-depth study or training before taking the examination.

When planning your studying, you should also think about what percentage of the examination questions are devoted to each major content area. (This information is on pages

9-17.) If you are not very familiar with a content area that will include a significant proportion of the examination questions, you probably should spend some additional time studying this area.

2. Decide which resources will best help you to prepare for the examination. The references listed above on this Bulletin may be helpful when you are reviewing the content areas included in the examination. (Again: The reference list is provided for possible use as a study aid only. The BCCB does not intend the list to imply endorsement of specific documents.)

You may choose to study on your own or you may decide to take a course, seminar, or workshop to gain a better understanding of one or more content areas. If you know other building commissioning professionals in your area who are taking the examination, you may want to form a study or review group.

3. Answer the sample questions in this Candidate Bulletin to familiarize yourself with the types of questions that will be on the examination.

TAKING THE EXAMINATION

WHAT ARE THE REQUIREMENTS AT THE EXAMINATION SESSION?

The examination will be given under strict security. You will be required to show two forms of identification (including photo identification) in order to enter the testing site. Trained proctors will supervise the examination. Irregularities observed during the examination, such as creating a disturbance, giving or receiving unauthorized information or aid to or from other examinees, or attempting to remove examination materials or notes from the testing room, may be sufficient cause to end your participation in the examination, or to invalidate your score. Irregularities may be identified by the examination proctors through direct observation or may be evidenced by subsequent statistical analysis of answer sheets. The BCCB reserves the right to investigate any incident of misconduct or irregularity.

Testing Site Requirements

1. You must present your Admission-to-Test Notice, plus a separate government-issued photo identification (e.g., passport, driver's license), and another form of identification containing your signature at the testing site in order to take the examination. **No exceptions to this requirement will be made.**
2. You should arrive at the testing site approximately forty-five (45) minutes prior to the start of the examination to allow sufficient time for you to check-in and locate your seat. **Late arrivals may not be admitted to the examination. No one will be admitted after the examination begins.**
3. You may not have access to books, papers, notes, mobile telephones, pagers, beepers, personal digital assistants (PDAs), calculators, or other electronic devices during the test session.
4. You must provide your own sharpened, number two pencils for the examination.
5. You may make notes only in blank areas of your test booklet.
6. Unauthorized visitors will not be allowed at the examination site. Observers approved by the BCCB may, however, be present during the examination.
7. Only water will be allowed in the testing room. All other food and beverages are prohibited.
8. There are no scheduled breaks during the examination. If you need to go to the rest room or use a telephone to respond to an urgent message while the examination is in progress, you may do so. A proctor will collect your test materials before you leave the testing room and you will need to show your ID again to be readmitted. **You will not be given additional time to complete the examination.**
9. You shall not be permitted to remove any examination materials or documents from the testing room.

Before you take the examination, you will be asked to sign the following statement:

Due to the confidential nature of this examination, I affirm that I will not copy, record, or retain examination questions or transmit them in any form to any other person or organization.

If you do not sign this statement, you will be dismissed from the testing center. The theft or attempted theft of the examination or the copying or disclosure of examination questions is punishable by law.

WHAT IF I REQUIRE SPECIAL TESTING ARRANGEMENTS?

The BCCB will make a reasonable effort to accommodate eligible candidates who provide documented evidence of a disability or other need for special arrangements with auxiliary aids or services that do not present an undue burden to the BCCB and do not fundamentally alter the measurement of the knowledge and skills that the examination is intended to test. **If you believe that you will require special testing arrangements, you should inform the BCCB of your specific needs in writing when you submit your application, and, in any case, you must contact the BCCB Administrative office in writing no later than the application deadline.** You and your health care provider will need to complete a form to document the disability and the need for accommodation. You and your health care provider must submit the following information:

- Diagnosis and nature of disability
- Name of test used to evaluate the condition
- Length of the condition
- Date you were last seen
- What accommodation is suggested

There is no additional charge for special accommodations. Each request will be evaluated individually and a letter will be sent to you outlining the accommodations that have been granted approximately six (6) weeks prior to the examination.

WHAT IF I REQUIRE AN ALTERNATIVE DAY TEST SITE DUE TO RELIGIOUS BELIEFS?

If you are unable to attend the regularly scheduled examination because of religious beliefs, BCCB may arrange for an alternative day for you to take the examination. Any request for an alternative examination day must be submitted to BCCB with your application along with a letter from a religious authority that verifies the religious prohibition. There is no charge for alternative day testing at a regular examination site, but if another location for an alternative day examination site is requested, there may be an additional charge.

HOW IS THE EXAMINATION SCORED?

Your performance on the examination will be measured against a predetermined standard of knowledge and skills. This standard is the level of knowledge and skills that can reasonably be expected of building commissioning professionals serving in a lead project role. You will NOT be measured against the performance of the other individuals taking the examination, but only against the predetermined standard. This means that if everyone who takes the examination meets the standard, everyone will pass.

All questions on the examination carry the same weight toward your final score. There is no penalty for a wrong answer, so it is to your advantage to answer every question, even if you have to guess.

The passing score for the CCP™ examination is set by a national panel of experts representative of the field of building commissioning. These experts reviewed each examination question, evaluated

the difficulty of the question, and made a judgment as to how a professional having the defined standard of competence would perform on the question. These judgments were analyzed statistically to determine the passing score.

WHAT INFORMATION WILL I RECEIVE ABOUT MY SCORE?

The examination is designed only to distinguish those who have the minimum requisite knowledge and skills from those who do not. There is no evidence that someone who receives a very high score on the examination will be a noticeably better practitioner than someone whose score falls exactly at the passing point. Therefore, if you pass the examination, you will be informed only that you have successfully completed the certification process. You will NOT be notified of your actual numeric score.

If you fail the examination, you will be notified of your score and the minimum score required to pass, and will receive a diagnostic report showing your performance in each major content area. This information is provided to assist you in deciding whether to retake the examination and how to plan your study efforts for future examinations.

WHEN WILL I RECEIVE MY EXAMINATION RESULTS?

The BCCB will mail the examination results approximately 6-8 weeks after the examination. **To protect the confidentiality of your examination score, no results will be given over the telephone, by fax, or via e-mail.**

WHAT IF I FAIL THE EXAMINATION?

Retaking the Examination

There is no limit to the number of times that you may apply for and take the examination. A new application form and all applicable fees must be submitted each time re-examination is requested and you must meet all eligibility requirements in effect at the time of the application.

Your initial application is valid for a period of twenty-four (24) months from the date of its receipt by the BCCB. If you are reapplying for an examination date within this 24-month period, you need only enter information on the application that has changed since your previous application. You do not need to resubmit supporting project documentation or new references. You do, however, need to pay the application fee again. If you are reapplying for an examination date that is beyond the 24-month period, you must submit a new complete application, including project documentation, all required references, and the application fee.

Request for Hand Scoring

If you fail the examination, you may ask that your examination be rescored by hand to verify the reported score. Requests must be in writing and must be accompanied by a banker's check, money order, or check drawn on an authorized company account in the amount of \$50.00, made payable to the BCCB. Requests for hand scoring can be honored only up to six (6) months after your testing

date.

Cancellation of Scores

If, for any reason, you decide that you do not want your score reported, you may follow either of two procedures:

1. Tell an examination proctor before leaving the examination site that you wish to cancel your scores, and complete and sign a score cancellation form.
2. Write to the BCCB requesting cancellation of your scores. Your written request must be signed and must be received within five (5) business days after the date of the examination.

A canceled score will not be reported to you or to the BCCB, nor will a record be kept of your examination results. **If you have your score canceled, you will not receive a refund of the application fees you paid.** To retake the examination after a score cancellation, a new application and fee must be submitted and you must meet all eligibility requirements in effect at the time of the application.

Appeal of Examination Scores

There shall be no right to appeal a failing examination score, but, as described above, you may request that your examination be rescored by hand.

In addition, it is the policy of BCCB to provide every candidate with an opportunity to question the reliability, validity, and/or fairness of a test and its questions. Candidates may comment about any test question or questions, test procedure, and/or the test itself by completing the comment form distributed by BCCB following each examination. Comment forms must be turned in before leaving the testing site. Alternatively, a candidate may submit a complaint in writing to BCCB no later than fourteen (14) days after taking the examination. Complaints and challenges must be communicated in writing and within this time frame; BCCB will NOT consider late challenges or complaints, or challenges or complaints not submitted in writing. Any complaints and challenges should be addressed to the BCA Executive Director.

All challenges and complaints shall receive BCCB's full attention. BCCB will investigate each challenge or complaint and acknowledge it in writing to the complaining candidate. All comments will be kept in BCCB's records.

Required Information: Comment forms and letters should describe the basis for the content challenge or administrative complaint in as much detail as possible, including the:

- Candidate's name, address and telephone number;
- Name, address and telephone number of person(s) alleged to be involved;
- Names, addresses, and telephone numbers of others who may have knowledge of the facts and circumstances concerning the situation;
- Date and location of the test administration; and

- Remedy desired by the candidate.

Mailing Information: A written letter of complaint must be submitted no later than fourteen (14) calendar days after taking the exam to the following address: Building Commissioning Certification Board, c/o Director of Certification, Building Commissioning Association, P.O. Box 2016, Edmonds, WA 98020; email dana@bcxa.org – fax 425/771-9588.

Questions of Exam Validity: Comments regarding examination validity will be reviewed by the BCCB upon referral by the testing company staff. The potential changes resulting from this review are generally limited to amending or eliminating the question. Whether a change is necessary will be determined by the BCCB based upon the nature and severity of the situation.

For security reasons, examination materials shall not be available for review by candidates. Scored answer sheets and test books are not open to public inspection or subsequent review by the candidate. Please note that the examination booklets are destroyed immediately after the examination and answer sheets are destroyed six months after the examination date.

Other Questions: Complaints based on examination administration practices or other circumstances not related to examination validity will be reviewed and investigated by the BCA Executive Director. If the Executive Director determines that the complaint is frivolous or fails to state a violation of BCCB's rules, BCCB shall take no further action. If the Executive Director determines that good cause may exist to question compliance with BCCB rules, BCCB will investigate further. In general, BCCB will consider remedial action only in the event that a negative effect upon group scores is found. The potential recourse available to affected candidates is limited to a waiver or reduction of fees; A PASSING SCORE IS REQUIRED FOR CERTIFICATION IN ALL INSTANCES.

Appeal: A candidate may appeal a decision to the BCA Board of Directors. However, the Board of directors will only reconsider the decision if the candidate provides a rationale for why the original disposition was arbitrary or capricious. Any such appeal shall be limited to written briefs. The decision of the BCA Board of Directors shall be final.

Nondiscrimination Policy

Your score will be based solely on your performance on the certification examination. The BCCB does not discriminate against any person on the basis of age, gender, sexual orientation, race, ethnicity, religion, national origin, medical condition, physical or learning disability, or marital status.

WHO WILL HAVE ACCESS TO MY EXAMINATION SCORE?

Your examination score is confidential and will be available only to the BCCB and to you. The BCCB will *not* honor requests for your score made by a third party, unless you expressly give your permission in writing for the BCCB to release your score.

WHAT ARE THE GUIDELINES FOR USE OF THE CCP™ CREDENTIAL?

Candidates who pass the examination will receive a certificate suitable for framing and will have the right to refer to themselves as a Certified Commissioning Professional™ (CCP™) as long as they maintain valid certification with BCCB. The “CCP™” and “Certified Commissioning Professional” marks are owned by BCA, and BCA and BCCB have the sole rights to control the use of these designations. BCA and BCCB, however, grant a worldwide, non-exclusive license to all individuals holding certification from BCCB to use the marks, so long as they maintain continued certification, in the following manner:

- Displaying the certificate issue by BCCB granting CCP™ status;
- Stating that the individual is a “Certified Commissioning Professional” or a “CCP™”, or otherwise indicating certification by BCCB;
- Using the marks on business cards and/or stationery;
- Using the marks in telephone directory or online directory advertisements for services as a building commissioning professional; and
- Using the marks on other promotional materials, provided that such materials are reviewed and approved in advance by BCCB.

If you have any questions regarding the proper use of the “CCP™” and “Certified Commissioning Professional” marks, and for all uses of these marks other than on business cards, stationery, or in telephone directory or online directory advertisements, submit a sample of the proposed use to BCCB for review. BCCB reserves the right to control the quality of all promotional materials on which the “CCP™” or “Certified Commissioning Professional” marks are used. These marks may not be used in any manner that implies that you have any relationship with BCCB or BCA other than as a certificant or in any other manner that is in conflict with BCCB philosophy or principles as expressed in BCCB’s standards, policies, and procedures. From time to time, BCCB may ask you to provide BCCB a sample of stationery, business cards, or other promotional materials so that BCCB can determine whether its marks are being used in a manner that complies with this license. If you fail to comply with the permitted use of BCCB’s marks, or if you fail to maintain valid certification with BCCB, you will no longer have the right to use these marks in any manner and may not distribute any materials containing the marks that you have already prepared. BCCB shall be the final judge as to whether any use of its marks is consistent with BCCB’s standards, policies, and procedures.

BCA and BCCB also grant your employer an non-exclusive, worldwide license to use the “CCP™” and “Certified Commissioning Professional” marks to advertise your services as a Certified Commissioning Professional, provided you have maintained continued certification with BCCB and that such advertisements are truthful and not misleading.

BCA and BCCB reserve the right to take legal action against you and/or your employer for any use of the “CCP™” or “Certified Commissioning Professional” marks that are in violation with the terms of this license.

FOR HOW LONG WILL MY CCP™ CREDENTIAL BE VALID?

Your initial certification will be valid for a period of three (3) years from the date printed on your certificate. You must recertify every three (3) years. Renewal of your certification involves completing a recertification application and being approved for recertification by the BCCB. To be

recertified, you will have to show evidence of continued competence, as demonstrated by your additional work experience and other related professional activities. During your initial certification period, the BCCB will send you a Recertification Handbook describing the requirements for recertification.

IS IT POSSIBLE FOR MY CERTIFICATION TO BE REVOKED?

If you continue to work as a professional in good standing within the field of building commissioning, it is very unlikely that your certification will be revoked. However, you should be aware that the BCCB has the right to revoke your certification if it is substantiated that you:

- Falsified information on your application;
- Misappropriated examination questions or materials;
- Cheated on the certification examination or assisted another candidate with cheating;
- Misused or misrepresented the CCP™ credential; or
- Were found guilty of violating the law with respect to your professional responsibilities by a court, licensing agency, or registration agency.
- Engaged in any other behavior that is in violation of the BCCB disciplinary policy.

Also, if you fail to renew your initial certification by the recertification deadline, your certification will be terminated and you will no longer have the right to use the CCP™ designation.

COMPLETING THE APPLICATION

WHAT ARE THE INSTRUCTIONS FOR COMPLETING THE APPLICATION?

The instructions for filling out each section of the application are included in the application form. Please read these instructions carefully to be sure that you have complied with all application requirements.

WHAT IS THE TIMELINE FOR THE APPLICATION PROCESS?

The following is the timeline for the application process. All times refer to the number of weeks in advance of the **examination date** that each milestone occurs.

Application materials and examination date/sites available on line.....	24 weeks
Application period opens (earliest date to submit applications).....	16 weeks
Application deadline (including all supporting documentation).....	9 weeks
Applicants notified of approval or denial of candidacy	4 weeks

Admission-to-Test Notices mailed 2 weeks

Examination administered..... 0 weeks

These timeframes are approximate. Refer to the current Test Administration Schedule for the exact dates applicable to the examination administration for which you wish to register.

Although applications will be accepted through the application deadline date, it is to your advantage to submit your application as early as possible. The BCCB must also receive your supporting documentation (project experience forms, client references, and academic transcript) by the application deadline.

WILL MY APPLICATION DATA BE KEPT CONFIDENTIAL?

Your application data, like your examination score, will be held in strictest confidence and will not be released to anyone without your express written consent. However, the BCCB reserves the right to use certain data from your application to prepare summary statistical analyses, some of which may be published. In these cases, your data will be consolidated with data from other applicants. Your individual data will never be made public.

WHAT IF MY NAME, ADDRESS, OR TELEPHONE NUMBER CHANGES?

If the name, mailing address, e-mail address, and/or telephone number that you entered on your application changes while your application is pending, you must notify the BCCB in writing immediately, and not later than six (6) days after such change of information. If you neglect to report the changes to the BCCB, you may miss important notices, which may result in your not being able to sit for the examination. Also, you must notify the BCCB in writing, if you want your new name to appear on your certificate. Please note that the name on the identification documents you present at the test site must match the name on file at the BCCB.