

Candidate Handbook

CONSTRUCTION HEALTH AND SAFETY TECHNICIAN®



EIGHTH EDITION | JANUARY 2012

BCSP | Board of Certified
Safety Professionals

Advancing the Safety, Health and Environmental
Profession Since 1969

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Champaign, IL 61821 USA

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Construction Health and Safety Technician Candidate Handbook
Eighth Edition
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TABLE OF CONTENTS

Introduction	1
General Qualifications	3
Application Instructions	5
General Rules and Procedures.....	8
Overview of the CHST Examination.....	9
Sample CHST Examination Items	11
CHST Examination Blueprint	14
Preparing for the CHST Examination.....	19
Review and Study Sources	21
Published References Presenting Coverage of Subject Matter Associated with the CHST Examination Blueprint	22
Taking the CHST Examination	24
Summary of Computer-delivered Examination Rules.....	29
Examination Reference.....	31

Forms

- CHST Application Form
- CHST Experience Form
- CHST Professional Reference Form

INTRODUCTION

Definitions

Construction Health and Safety Technician^{®1} or *CHST* is a certification awarded to safety practitioners who meet and continue to meet all requirements established by the Board of Certified Safety Professionals (BCSP).

Construction Health and Safety Technicians are persons who perform construction health and safety activities on a full-time or part-time basis as part of their job duties. For some, such duties may be in addition to other job functions. Some examples of construction health and safety activities are safety inspections, job safety planning, assisting with the completion of job hazard analysis, organizing and conducting health and safety training, investigating and maintaining records of construction accidents, incidents, injuries and illnesses, and similar functions.

The CHST Certification

BCSP awards the Construction Health and Safety Technician (CHST) certification to individuals who demonstrate competency and work part-time or full-time in health and safety activities devoted to the prevention of construction illnesses and injuries.

The CHST certification meets national standards for certifications. The National Commission for Certifying Agencies² currently accredits it.

The CHST Certificant

Benefits of the CHST certification for construction health and safety practitioners include:

- Satisfaction from knowing that you meet a standard of your professional peers;
- Self-esteem because you have respect of other health and safety professionals for your professionalism;
- Recognition from an employer or potential employers for health and safety qualifications;
- Potential recognition from an employer through increased job responsibility and/or pay;
- Improved ability to compete for construction health and safety positions; and
- An annual wallet card noting certification.

Benefit for Employers

The CHST certification benefits employers because it:

- Is helpful when selecting a qualified construction health and safety professional;
- Is a means for improving safety and health in the workplace through competence and confidence;
- Improves the company image for worker protection;
- Increases worker and public confidence in the employer's construction safety and health program; and
- Enhances company profitability and quality by reducing construction accidents, illnesses, and insurance claims.

Background

The CHST program began at the request of safety professionals in the construction industry. In 1992, representatives of the Construction Divisions of the American Society of Safety Engineers and the National Safety Council sought assistance from the Board of Certified Safety Professionals (BCSP). As the CHST program was developed, it was assigned to BCSP to administer.

The CHST program recognizes that many employers assign responsibility for construction safety and health functions to those with very important roles in protecting workers. The CHST program also recognizes that whether full-time or part-time, the health and safety functions require high standards of competency. Many construction safety professionals use the CHST as a stepping stone to greater roles in safety and health and, in some cases, to the Certified Safety Professional^{®3} (CSP[®]) certification.

There are several routes of entry into the CHST certification. The program accepts candidates who gained knowledge of safety and health through academic preparation coupled with job experience in construction. It also accepts those who developed expertise through construction job experience and job safety and health training.

¹ "Construction Health and Safety Technician" and the CHST logo are registered trademarks with the U.S. Patent and Trademark Office.

² National Commission for Certifying Agencies, 2025 M Street, N.W., Ste. 800, Washington, DC 20036; Phone: 202-367-1165; Web: www.credentialingexcellence.org.

³ Certified Safety Professional[®], CSP[®], and the CSP logo are registered certification marks with the U.S. Patent and Trademark Office.

Process Overview

A candidate must apply to start the certification process. Reviewers check the applicant's qualifications to determine if the applicant meets the education and experience requirements and if the applicant can sit for the examination. After meeting all requirements and passing the CHST examination, a candidate receives the CHST designation. To keep the certification, one must pay an annual renewal fee and meet Recertification requirements detailed in the *Recertification Guide*.

Fees

There are fees associated with BCSP certifications. Fees are nonrefundable and nontransferable. The latest fees can be found at www.bdsp.org/ataglance.

Checks, money orders, and credit cards are acceptable forms of payment. Make checks and money orders payable to **BCSP**. Pay all fees in U.S. dollars drawn on a U.S. bank. **Fees may change at any time.**

Non-sufficient fund (NSF) checks will stop action on the certification process for any candidate or certificate holder covered by the check and the check originator will be billed for any related NSF fees.

Qualified veterans and certain active military and reservists can seek reimbursement from the Department of Veterans Affairs (VA) for BCSP examination fees. Contact your regional VA office (click on "Find a Facility" at www.va.gov) for eligibility and reimbursement details.

GENERAL QUALIFICATIONS

To qualify for the CHST, an application must meet all of the following requirements:

- Be of good moral character and have high ethical standards;
- Have experience in construction;
- Have health or safety training or education; and
- Pass the CHST examination.

Experience and Education

Candidates from various backgrounds can qualify for the CHST certification.

Education/Experience/Training Requirements

To qualify for the CHST examination, an applicant must meet the following requirements:

- CHST must have a high school diploma or GED.
- Candidates need at least 3 years of construction experience with at least 35% safety duties.
- A candidate may substitute an associate's or higher degree for one year of experience.
- A candidate can substitute two years of experience with an ABET safety degree.

Construction Work Experience. Acceptable construction work experience includes:

- Work in a construction craft (e.g., carpenter, plumber, electrician, iron worker, millwright, painter, laborer, etc.).
- Work for a construction company as a manager, supervisor, or specialist that involves planning, organizing or executing construction projects that typically involve activities at or frequent visits to construction sites.
- Work as a designer or planner for construction projects.
- Work as a specialist for which the practice primarily involves construction.

Construction may involve activities related to the assembly, repair, and maintenance of buildings, earthworks, highways, bridges, structures, towers, tunnels, excavations, or other activities, such as quarrying and mining.

Computing Work Experience. Because construction work often involves extended work weeks and concentrated work

schedules, experience can be equated to years of experience by computing hours worked.

BCSP defines one year of work as 2,000 hours based on a 40-hour week and 50 weeks per year. A CHST candidate may convert work experience from hours to years by dividing the total hours worked by 2,000. BCSP defines one month of work as 167 hours and the number of months of work can be converted from hours by dividing the hours by 167. A position must have at least 30 hours per week to qualify as experience on the CHST application.

College Courses and Degrees

If you present college courses or degrees to meet the CHST experience or education requirements, note that BCSP accepts educational credit from U.S. colleges and universities meeting the following institutional standard:

For degrees and courses from U.S. colleges and universities to be accepted by BCSP, the school must hold institutional accreditation from an accrediting body with institutional accrediting authority recognized by the Council for Higher Education Accreditation (CHEA)⁴ or the U.S. Department of Education⁵ and the degree or courses must have been completed during the period in which the school holds accreditation.

Visit the CHEA and/or U.S. Department of Education web sites to determine if your college or university holds acceptable accreditation.

BCSP requires that all degrees from colleges and universities outside the United States be evaluated for U.S. equivalency by one of five specific NACES® members. BCSP recommends that you have your academic degree evaluated before applying for certification.

To complete the foreign degree evaluation process, please visit **www.bbsp.org/educationstandard**.

⁴ Council for Higher Education Accreditation, One Dupont Circle NW, Suite 510, Washington, DC 20036-1135; Phone: 202-955-6126; Web: www.chea.org.

⁵ U.S. Department of Education; Web: www.ope.ed.gov/accreditation.

Interim Designation and Time Limit

If an applicant does not meet the full experience (or substituted education) requirement and passes the CHST examination, BCSP issues the Associate Construction Health and Safety Technician (ACHST) designation.

There is a time limit for holding an associate designation. BCSP will estimate when you will complete your experience requirement based on employment at the time of application. BCSP will contact you about when you complete the estimated time to verify whether you have made progress to meeting the experience requirement. However, the maximum time during which someone can hold an associate designation is three years from the date of application.

APPLICATION INSTRUCTIONS

An application consists of:

- A CHST Application Form;
- Experience forms as needed to cover each period of employment during the last three years for which credit is sought;
- Two (2) reference forms;
- Application fee (payable in U.S. dollars); and
- College transcript(s), if applicable.

Candidates may apply at any time. There are no deadlines. An application is valid and held on file as long as a candidate meets time limits. It is also a good idea to keep a copy of all submitted application materials in case originals are lost in the mail. Additional application, experience, and reference forms are located on the BCSP website and can be filled out electronically and printed locally.

Application Form

When preparing your application form, please provide all information requested. BCSP can act only on information provided. It is easier for evaluators to determine eligibility when information is complete and well written. BCSP will return incomplete applications. Missing information, incorrect fees, and invalid check or credit card transactions will delay application processing. ***The application form must be typed or printed in black ink.*** Make copies as needed for draft work.

Applicant Personal Data

- Use your legal, given name. Do not use nicknames. The testing center will not admit you to test if your name does not exactly match your identification (i.e. driver's license or passport).
- Provide your social security number. BCSP uses it for secondary identification and will not release it.
- Provide your mailing address. BCSP will send all correspondence to this address. Your home address is strongly recommended, because many employers do not forward mail when someone changes employers.
- You must notify BCSP about any address or name changes after you apply. Name changes will require a copy of the legal documents (marriage certificate, divorce decree, etc.).
- Provide your home, work, fax, and mobile numbers, and email address. If you live outside of the United States, please include the country codes.

- Select one North American Industry Classification System (NAICS) code from the table of NAICS codes (Table 1 on page 7), which best fits your current position.

College Education

If you are seeking credit from a college degree or course:

- Provide an ***original transcript*** for each degree or school from which you seek credit. An original transcript will have the school registrar's stamp or seal and must be sent in a university-sealed envelope. The degree title and date awarded must appear on the transcript for BCSP to accept it for credit.
- Check one appropriate box to indicate if you are submitting a transcript and how you will be submitting it.

Summary of Employment

List the positions in reverse chronological order. List *each position* for which you are seeking credit, the name of the employer and the period of employment. Enter the number of months employed in each position.

- You must account for the last three years of experience.
- Account for discontinuities in employment, such as being a full-time student.
- Explain any over-lapping positions.

References

Professional references are people who can attest to your experience in construction, health, and safety.

- On your application form, list each person who will be providing a reference form.
- List the person's title and professional relationship.

Safety and Health Activities

Check all licenses, registrations or certifications that you hold. Check all health and safety societies in which you are a current member.

Criminal Conviction and Professional Registration Denied Policy

BCSP requires applicants to disclose criminal convictions, disciplinary actions, and denial or revoked certifications, licenses and professional registrations. BCSP uses its policy relating to criminal convictions to determine whether the application can proceed or whether it will be terminated. In some cases, a BCSP attorney may contact the applicant to clarify information about the conviction. A copy of the BCSP criminal conviction policy appears at www.bdsp.org/About_BCSP.

BCSP also requires applicants to disclose any disciplinary actions or denial of certifications, licenses or professional registrations taken against the applicant by the issuing certification board or agency. BCSP determines whether the action should be considered in the certification application process.

Applicants are required to provide disclosure of:

- All felony convictions
- All misdemeanor convictions within the past five (5) years (Minor traffic violations and petty offenses DO NOT have to be reported)
- Any record of unethical behavior
- Information related to having a professional license of certification denied, suspended or revoked for reasons other than not meeting qualifications, failure of examination, or failure to pay renewal fees

Validation

Be sure to ***sign and date your application*** or it will be returned. Your signature means that you agree with the statements printed above the signature block and agree to abide by the Technician and Technologist Code of Ethics.

Application Payment Information

- Please indicate how you are paying your application fee.
- Your application fee must accompany your application or it cannot be processed.
- Fees must be in U.S. dollars and drawn on a U.S. bank.
- If you pay by credit card, please record your credit card number, expiration date, name as it appears on card, the CVV/CVV2, and place your signature below the credit card information. Check your credit card number for accuracy.
- If you pay by check or money order, attach it to the front of the application.

Experience Form

- You must submit a separate experience form covering each position for which you seek credit. Resumes are not accepted. You may have worked in several positions for the same employer, but ***each position requires a separate experience form.***
- Please provide a complete description of each position and its responsibilities, especially safety and health responsibilities. Evaluators can only determine eligibility from the information you provide to them. Do not assume they will know what job duties are required from the job title.
- List the number of months you are claiming for this position under “Experience Data for this Position” depending on the experience option under which you apply. If you adjust work hours to months, show both hours and months (one month = 167 hours).

Employer Data for this Position

List the employer’s name, mailing address, and phone number for each position. Also, list the supervisor’s name for each position.

Reference Form

- You must submit at least two reference forms. Your references must be able to validate your experience.
- If you are self-employed, have a client or client’s representative be a reference.
- You should not use a relative or someone who you supervise as a reference.

A reference must be able to attest to your construction, health, and safety experience and other aspects of positions for which you seek credit. Good references are people who know your work experience, such as your supervisor or safety and health professionals you work with who hold recognized certifications.

Students Applying for the CHST

If you are applying as a student in a health and safety degree program, a faculty member must serve as your first reference. The faculty member must verify the projected graduation date from the health and safety degree program.

Table 1. NAICS Codes

North American Industrial Classification System Codes	
NAICS Code	Description [Old SIC Code]
	* indicates a code used by BCSP and CCHES
11	Agriculture, Forestry, Fishing and Hunting [07]
21	Mining [10]
211	Oil and gas extraction
2121	Coal mining
2122	Metal ore mining
2123	Nonmetallic mineral mining and quarrying
213	Support activities for mining
22	Utilities [49]
2211	Electric power generation, transmission and distribution
2212	Natural gas distribution
2213	Water, sewage and other systems
23	Construction (general)
236	Construction of buildings [15]
237	Heavy and civil engineering construction [16]
238	Specialty trade contractors [17]
31-33	Manufacturing
311	Food manufacturing [20]
312	Beverage and tobacco product manufacturing [21]
313	Textile mills
314	Textile product mills [22]
315	Apparel manufacturing [23]
316	Leather and allied product manufacturing [31]
321	Wood product manufacturing [24]
322	Paper manufacturing [26]
323	Printing and related support activities [27]
324	Petroleum and coal products manufacturing (including refineries) [13, 29]
325	Chemical manufacturing [28]
326	Plastics and rubber products manufacturing [30]
327	Nonmetallic mineral product manufacturing
331	Primary metal manufacturing [33]
332	Fabricated metal product manufacturing (including ordnance) [34, 19]
333	Machinery manufacturing [35]
334	Computer and electronic product manufacturing [36]
335	Electrical equipment, appliance, and component manufacturing [36]
336	Transportation equipment manufacturing [37]
337	Furniture and related product manufacturing [25]
339	Miscellaneous manufacturing [39]
42	Wholesale Trade [50]
44-45	Retail trade (general) [52]
447	Gasoline stations
452	General merchandise stores
459*	Other retail trade
48-49	Transportation
481	Air transportation [45]
482	Rail transportation [40]
483	Water transportation [44]
484	Truck transportation [42]
485	Transit and ground passenger transportation [41]
486	Pipeline transportation
491	Postal service
492	Couriers and messengers
499*	Other transportation and support services
51	Information (general)
511	Publishing industries (except Internet; including newspapers, books, periodicals, directories and software) [27]
512	Motion picture and sound recording industries [48]
515	Broadcasting (except Internet) [48]
516	Internet publishing and broadcasting
517	Telecommunications [48]
518	Internet service providers, web search portals, and data processing services
519	Other information services (including <u>libraries</u>) [82]
52	Finance and Insurance (general)
524	Insurance carriers and related activities [63]
53	Real Estate and Rental and Leasing
531	Real estate [60]
532	Rental and leasing services
533	Lessors of nonfinancial intangible assets
54	Professional, Scientific, and Technical Services [89]
5411	Legal services
5413	Architectural, engineering and related services
5416	Management, scientific, and technical consulting services (incl safety, health & environmental)
5417	Scientific research and development services
5419	Other professional, scientific, and technical services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
561	Administrative and support services
562	Waste management and remediation services
61	Educational Services [82]
6111	Elementary and secondary schools
6112	Junior colleges
6113	Colleges, universities, and professional schools
6116	Other schools and instruction
6117	Educational support services
62	Health Care and Social Assistance [80]
621	Ambulatory health care services
622	Hospitals
623	Nursing and residential care facilities
624	Social assistance
71	Arts, Entertainment and Recreations
72	Accommodation and Food Services (general) [70]
721	Accommodation
722	Food services and drinking places
81	Other Services (except Public Administration)
811	Repair and maintenance
812	Personal and laundry services
8139	Business, professional, labor, political, and similar organizations [86]
819*	Other Services
92	Public Administration (Create a four character code by selecting the applicable 9xx functional category plus a fourth digit to indicate the government level)
921x	Executive, legislative, and other general government support
922x	Justice, public order, and <u>safety</u> (including police, fire & safety agencies) activities
923x	Administration of human resource programs
924x	Administration of environmental quality programs
925x	Administration of housing programs, urban planning, and community development
926x	Administration of economic programs
927x	Space research and technology
928x	National security and international affairs
xxx1*	Federal [91]
xxx2*	State [93]
xxx3*	Local [92]
xxx4*	International [94]
99	Nonclassifiable Establishments
	Other BCSP Classifications
96*	Unemployed
98*	Retired from full-time employment

GENERAL RULES AND PROCEDURES

Non-Discrimination

BCSP will evaluate your application objectively without regard to age, gender, race, religion, national origin, marital status, disability, or sexual orientation.

Time Limits

Certain time limits apply to the CHST process. Failure to meet these time limits will result in a terminated application. Upon termination, your application will be destroyed and you will have to reapply and begin the process again. See Table 2 for time limit rules.

Table 2. Candidate Time Limits Rules

Examination Eligibility Time Limits

- Once BCSP declares you eligible for the CHST examination, you must sit for the examination at least once every three years until achieving a passing score to remain a CHST candidate.
- If you fail the CHST examination, you must retake it within three years.

Examination Eligibility Extensions

- If you are eligible for the CHST examination and cannot sit for the examination before your three-year time limit expires, you may purchase a one-year extension to your examination eligibility time limit. You may be eligible to purchase a second one-year time limit extension at the end of the first extension. You must contact the BCSP office to see if you are eligible.

Appeals

You may appeal decisions related to earning and maintaining BCSP credentials.

Requests for appeal must be submitted to the Executive Director in writing and in accordance to the current appeals policy located online at www.bcsp.org/About_BCSP.

Maintaining your Certification

After you achieve the CHST certification, you must maintain your certification by:

- Paying an annual renewal fee; and
- Meeting Recertification requirements every five years.

Annual Renewal Fees

Your CHST certification extends for one calendar year at a time. To renew your CHST, you must pay an annual renewal fee. Annual renewal fees are due on January 1 of every year. BCSP will send an invoice prior to the end of the year. Failure to pay your annual fee will result in the certification becoming invalid. The annual renewal fee for the first year is prorated for the portion of the year remaining after achieving the CHST and will be billed upon achieving the CHST.

Recertification

Once you achieve the CHST certification, you must meet Recertification every five years. You will need to accumulate 20 points from 10 activity categories. The Recertification program helps to ensure that CHSTs stay current in safety and health practice. Failure to meet the Recertification requirement will result in the certification becoming invalid. The *Recertification Guide*, found on the BCSP web site, gives details about recertification requirements.

OVERVIEW OF THE CHST EXAMINATION

The CHST Examination

The examination is based on what CHSTs do in practice and the knowledge and skills required. The structure includes domains of practice and tasks. The examination subjects appear as the knowledge and skills required within each task under each domain (pages 14 through 18).

General Description

The CHST examination consists of 200 multiple-choice items, each with four possible answers. Only one answer is correct. Each item is independent and does not rely on the correct answer to any other item. Data necessary to answer items are included in each item. Your score is based on the number of scored items you correctly answer.

You will have four hours to complete the CHST examination. **Examinations are closed book, and accessing external reference materials during your examination is not permitted.** For use during the examination, the testing center will provide you with materials for working out calculations by hand. The *Examination Reference* (pages 32 and 33) will be available to candidates on every item. Both pages of the *Examination Reference* are available and can be viewed quickly while taking the examination.

The examination assumes fundamental knowledge of high school mathematics (algebra, trigonometry) and high school science (biology, chemistry, and physics).

Calculations

Some items on BCSP examinations require you to make computations to determine the correct answer. Solutions to these items are usually rounded to two or three significant figures. You should select the answer closest to the computed value.

Computer-based Testing

The CHST examination uses computer-based testing, with one item appearing on the screen at a time. You will simply use a mouse to point to the desired answer and click on it to select it. Answers can be changed the same way.

You can mark items to return to later or simply skip them and move to the next item. At the end of the examination, there is a table of items and answers selected. The table

also shows skipped and marked items. You can return to any item by simply clicking on the item number.

Prior to beginning the actual examination, there is a tutorial. After completing the examination, you will log off to formally submit your examination for scoring. You will then receive unofficial score results before you leave the testing center facility.

Post-examination Surveys and Reporting Problems with Your Examination Experience

At the end of your examination (before you leave your computer testing workstation), you will have an opportunity to complete a brief survey. Please spend the time to answer the questions and make comments so BCSP can improve the CHST certification process. Also, a few days after you complete your examination, Pearson VUE may select you to receive an online survey that relates to how well Pearson VUE managed your testing experience. BCSP encourages you to complete this survey if you are selected to receive it. Both surveys help BCSP and Pearson VUE measure and improve our services.

BCSP values your feedback, and if there were problems with your examination experience (e.g., computer delivery issues, delays in checking you in, power failures), we want to know about them as soon as possible. Within 30 days of your examination, notify BCSP directly if you experienced problems so we can investigate them. After 30 days elapse beyond your examination appointment, BCSP no longer can begin an investigation of any specific examination problems you encountered.

Examination Blueprint

Table 3 on page 10 shows the distribution of items among domains for the CHST examination.

Table 3. Item Distribution by Domains

Task	Item Distribution on CHST Examination
Program Management	29%
Worksite Auditing	40%
Training	27%
Professional Responsibility	4%

The chart on pages 14 through 18 provides complete details on the examination structure: domains, tasks, knowledge, and skills.

Examination Passing Scores

BCSP uses a criterion-referenced procedure (the modified Angoff method) to establish minimum passing scores for examinations. This procedure ensures that your score is independent of scores for other candidates sitting for the examination. This procedure involves having a panel of experts rate each examination item with respect to a candidate who would just meet the minimum requirements to sit for the examination and should know the correct answer. The minimum passing score is calculated from results across all raters and across all examination items. The ratings reflect such things as the difficulty of items and the degree to which items are common for all areas of professional practice. As examinations are modified on a regular basis, the minimum passing score is adjusted for the difficulty of items on the examination. Item performance is also evaluated regularly to ensure that BCSP examinations maintain the highest testing standards.

Examination Development and Revisions

BCSP updates examinations continuously. Most items come from construction safety specialists in practice. Before BCSP accepts items into item banks, they go through rigorous technical, psychometric, and grammatical editing. In addition, practitioners with expertise in the subject area of the item review edited items on several

criteria, including importance in and relevance to safety and health practice. Also, 10–15% of the items on BCSP examinations are experimental, and do not contribute to a candidate's pass/fail decision. BCSP analyzes the performance of these experimental items before deciding to include them in the official item bank. Items that successfully complete this quality process are placed in the item bank for potential use in examinations.

Throughout item development, examination development, examination revision, and examination administration, BCSP consults with experienced testing specialists (psychometricians) to ensure that BCSP examinations and the entire testing and certification process conform to acceptable practice.

References

You can draw on study references in your own professional library or a company library. A list of published references providing reasonable coverage on the subject matter associated with the examination starts on page 22.

BCSP updates the list of references periodically on the BCSP web site at www.bbsp.org. Examination items are not necessarily taken directly from these sources. You may have previous or later editions or other references in your own library or in a company library that also present coverage on the subject matter.

The CHST examination requires some knowledge of U.S. laws, regulations, and standards. You should not rely on these laws, regulations, and standards as the only source of information in preparing for the CHST examination. Safety practice extends beyond compliance with published standards and deals with principles and practices that form the basis of standards or are relied upon when there are no standards.

SAMPLE CHST EXAMINATION ITEMS

Safety and health practitioners write draft items for the CHST examination. Draft items undergo several stages of review before being placed into the CHST examination item bank. A few sample items are included in this section. The items illustrate the style and format typical of items on the CHST examination. The CHST Examination Blueprint Correlation shows where the sample item can correlate to a specific knowledge area in the CHST blueprint (pages 14 through 18).

1. A construction employee receives the following exposure to noise on a construction site during an 8-hour period:

- 3 hours @ 92 dBA
- 2 hours @ 95 dBA
- 3 hours @ 90 dBA

The OSHA permissible exposures at these sound levels are:

<i>Sound Level</i>	<i>Permissible Duration</i>
90 dBA	8 hours
92 dBA	6 hours
95 dBA	4 hours

What percent of the PEL is this exposure?

- 1. 95.5%
- 2. 100.0%
- 3. 108.2%
- 4. 137.5%

CHST Examination Blueprint Correlation: Domain 1, Task 4, Knowledge Area 1

2. You find a one gallon container of methanol in a storage cabinet on a construction site.

Methanol has a flash point of 52°F and a boiling point of 148°F. What class of flammable and combustible liquid is methanol?

- 1. IA
- 2. IB
- 3. IC
- 4. II

CHST Examination Blueprint Correlation: Domain 1, Task 5, Knowledge Area 1

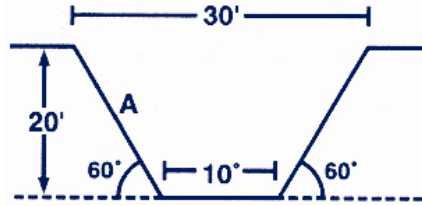
3. The primary purpose of an accident investigation is to:

- 1. Prevent accidents.
- 2. Determine fault.
- 3. Record accident costs.
- 4. Meet regulatory requirements.

CHST Examination Blueprint Correlation: Domain 1, Task 8, Knowledge Area 1

4. For the excavation shown below, what is the approximate slope of Side A?

1. 1/2:1
2. 3/4:1
3. 1:1
4. 1 1/2:1



CHST Examination Blueprint Correlation: Domain 2, Task 1, Knowledge Area 9

5. A job hazard analysis is being done for a construction job involving confined space entry. The confined space is likely to have an oxygen deficiency and have no toxic gases or vapors present. Which type of respiratory protection should be specified for workers who will enter the confined space?

1. Self-contained breathing apparatus
2. Air purifying, half-mask respirator
3. Air purifying, full face piece respirator
4. Hose mask without blower

CHST Examination Blueprint Correlation: Domain 2, Task 1, Knowledge Area 10

6. The greatest single source of error in colorimetric sampling devices is:

1. Interference by other contaminants.
2. Gel coagulation.
3. Temperature extremes.
4. Pump air flow inaccuracy.

CHST Examination Blueprint Correlation: Domain 2, Task 1, Knowledge Area 18

7. An air-purifying respirator is equipped with a canister that has a white color code. For what atmospheric contaminant(s) does this respirator give protection?

1. Carbon monoxide
2. Ammonia gas
3. Organic vapors
4. Acid gases

CHST Examination Blueprint Correlation: Domain 2, Task 2, Knowledge Area 5

8. The Occupational Safety and Health Act of 1970 requires each employer covered by the Act to furnish employees places "...of employment which are free from recognized hazards that are causing or likely to cause death or serious physical harm." This clause is commonly known as the:

1. "Recognized Hazard Clause."
2. "General Duty Clause."
3. "Employment Hazard Clause."
4. "OSHA General Hazard Clause."

CHST Examination Blueprint Correlation: Domain 2, Task 3, Knowledge Area 5

9. When planning a construction health and safety training program, the most important consideration is:

1. Training objectives.
2. Training methods.
3. Training staff.
4. Training program contents.

CHST Examination Blueprint Correlation: Domain 3, Task 1, Knowledge Area 9

10. A construction company experiences four federal OSHA recordable injuries and illnesses in one calendar year. The employees of this company worked a total of 250,000 hours during the year. What is the recordable injury and illness incidence rate (using the federal OSHA technique) for this company?

1. 3.2
2. 4.0
3. 5.0
4. 16.0

CHST Examination Blueprint Correlation: Domain 4, Task 1, Knowledge Area 1

ANSWERS TO SAMPLE CHST EXAMINATION ITEMS

Item No.	Correct Answer	Item No.	Correct Answer
1	4	6	1
2	2	7	4
3	1	8	2
4	1	9	1
5	1	10	1

CHST EXAMINATION BLUEPRINT

The CHST examination blueprint is based on what construction safety and health practitioners do in practice. The chart below provides the details. The top levels, called domains, represent major functions that construction safety and health practitioners perform. Within the domains are tasks. Most of the tasks have lists of knowledge and skills required to carry out this task.

CHST Blueprint and Examination Specification

DOMAIN 1 Program Management • 29%	
Task 1 Assess the scope of work with the construction project management team by reviewing contract documents in order to ensure the safety application is consistent with contract specifications and to support the development of the site-specific safety plan.	
Knowledge 1. General contract requirements 2. Construction means and methods 3. Applicable regulations, consensus codes, best practices, and local codes 4. Site-specific safety planning 5. Construction drawings	Skills 1. Accessing applicable documents 2. Reviewing applicable documents 3. Interpreting applicable documents 4. Reading construction drawings
Task 2 Participate in the development of a site-specific safety plan by detailing hazards and corrective actions in order to ensure that foreseeable hazards are addressed.	
Knowledge 1. Construction means and methods 2. Hazards associated with falls, struck by, electricity, caught between/crushing 3. Hazard recognition strategies 4. Applicable regulations, consensus codes, best practices, and local codes 5. Hazard communication 6. Components of emergency action plans 7. Crisis management 8. Medical/first aid procedures 9. Bloodborne pathogens 10. Relevant corrective actions and best practices 11. Security requirements and best practices	Skills 1. Applying regulations 2. Evaluating construction means and methods 3. Communicating effectively in speech and writing 4. Planning for emergencies 5. Documenting identified hazards
Task 3 Establish expectations for compliance with the site-specific safety plan with the contractors, employees, and other jobsite personnel using appropriate communication procedures in order to prevent accidents.	
Knowledge 1. Communication practices 2. Safety priorities 3. Coordination strategies for activities 4. Construction means and methods 5. Applicable regulations, consensus codes, best practices, and local codes 6. Disciplinary procedures	Skills 1. Communicating effectively in speech and writing 2. Coordinating activities 3. Setting safety priorities 4. Applying regulations and best practices
Task 4 Verify that the job safety analyses adhere to construction safety standards in cooperation with contractors, employees, and other jobsite personnel in order to ensure that foreseeable hazards have been identified and addressed.	
Knowledge 1. Hazard recognition and abatement strategies 2. Hazards associated with falls, struck by, electricity, caught between/crushing 3. Construction means and methods 4. Applicable regulations, consensus codes, best practices, and local codes 5. Engineering and administrative controls 6. Requirements and limitations of personal protective equipment	Skills 1. Recognizing hazards 2. Thinking critically 3. Developing job safety analyses 4. Eliciting information from key personnel 5. Communicating effectively in speech and writing

CHST Blueprint and Examination Specification (cont'd)

DOMAIN 1 (continued) Program Management • 29%
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Task 5

Provide technical guidance to jobsite personnel by maintaining a comprehensive knowledge of codes, standards, and best practices and informing jobsite personnel of regulatory changes as they develop in order to maintain a safe and healthful work environment.

Knowledge	Skills
<ol style="list-style-type: none"> 1. Applicable regulations, consensus codes, best practices, and local codes 2. Record keeping requirements 3. Substance abuse programs 4. Requirements and limitations of personal protective equipment 5. Communication practices (e.g., vehicle to disseminate information) 6. Security requirements and best practices 	<ol style="list-style-type: none"> 1. Communicating effectively in speech and writing 2. Using email 3. Using information technology systems 4. Accessing current information (e.g., regulations)

Task 6

Identify methods for addressing unanticipated hazards (e.g., resulting from change orders, weather, and/or schedule) using professional knowledge and judgment in order to prevent loss and to modify the site-specific safety plan.

Knowledge	Skills
<ol style="list-style-type: none"> 1. Sources of information about unanticipated hazards 2. Applicable regulations, consensus codes, best practices, and local codes 3. Hazards associated with falls, struck by, electricity, caught between/crushing 4. Hazard recognition and abatement strategies 	<ol style="list-style-type: none"> 1. Reading construction drawings and contract documents 2. Exercising sound judgment 3. Responding to unanticipated situations 4. Eliciting information from key personnel

Task 7

Activate the emergency response plan when necessary in accordance with the site-specific safety plan in order to protect jobsite personnel and mitigate loss.

Knowledge	Skills
<ol style="list-style-type: none"> 1. Regulations and best practices applicable to emergency planning 2. Emergency notification system (e.g., whom to call) 3. Types of emergencies (e.g., fire, medical, weather, power outage, workplace violence, environmental, terrorist threats) 4. Requirements and limitations of personal protective equipment 5. Incident command system 6. Emergency equipment 7. Crisis management 8. Medical/first aid procedures 9. Bloodborne pathogens 10. Security requirements and best practices 	<ol style="list-style-type: none"> 1. Responding to emergencies professionally 2. Coordinating emergency services and systems 3. Coordinating jobsite personnel in an emergency 4. Communicating effectively in speech and writing

Task 8

Participate in accident and incident investigations using established procedures in order to recommend appropriate corrective actions.

Knowledge	Skills
<ol style="list-style-type: none"> 1. Principles of investigation 2. Investigation techniques (e.g., direct, indirect, root cause analysis) 3. Record keeping and reporting of injuries and illnesses 4. Statistical tools for accident and claims analysis 5. Industry accident trends 6. Craft-specific accident trends 7. Sources of information about accidents 8. Interviewing techniques 9. Hazard recognition and abatement strategies 	<ol style="list-style-type: none"> 1. Communicating effectively in speech and writing 2. Using computers 3. Recommending corrective actions 4. Interacting positively with others 5. Motivating personnel to cooperate with investigations 6. Interviewing 7. Remaining objective 8. Finding facts

CHST Blueprint and Examination Specification (cont'd)

DOMAIN 2 Worksite Auditing • 40%

Task 1

Perform worksite assessments in accordance with regulations, best practices, and the site-specific safety plan using a walkthrough in order to verify compliance and identify hazards and potential hazards in the workplace.

Knowledge

1. Applicable regulations, consensus codes, best practices, and local codes
2. Principles of ergonomics as applied to construction practices and material handling
3. Common environmental hazards on construction sites (e.g., silica, asbestos, lead, noise)
4. Fall protection principles and application
5. Electrical safety and hazardous energy control (i.e., lockout/tagout)
6. Requirements and limitations of personal protective equipment
7. Scaffolds, ladders, and mobile elevated work platforms
8. Machine guarding, hand, and power tool safety
9. Trenching and excavation
10. Confined spaces
11. Hazard communication
12. Fire prevention and protection
13. Cranes and rigging
14. Powered industrial trucks (e.g., forklifts)
15. Steel erection
16. Emergency medical equipment
17. Site-specific safety plans
18. Testing equipment (e.g., electrical testing, measuring tape, dosimeters, air monitoring)

Skills

1. Conducting worksite assessments
2. Making observations to identify existing and foreseeable unsafe conditions and behaviors
3. Using measuring equipment
4. Documenting observations and measurements

Task 2

Recommend corrective actions for the hazards and potential hazards identified in the worksite assessment using professional knowledge and judgment in order to prevent loss and ensure compliance with regulations and the site-specific safety plan.

Knowledge

1. Coaching, counseling, and education techniques
2. Hazard recognition and abatement strategies
3. Engineering and administrative controls
4. Established discipline and accountability systems
5. Requirements and limitations of personal protective equipment
6. Applicable regulations, consensus codes, best practices, and local codes
7. Audit documentation techniques
8. Management escalation processes

Skills

1. Coaching safe behaviors
2. Recognizing imminent danger and applying stop-work techniques
3. Communicating effectively in speech and writing
4. Applying regulations
5. Recommending engineering and administrative controls
6. Recommending personal protective equipment
7. Escalating unresolved issues

Task 3

Participate in regulatory safety, health, and environmental inspections in accordance with directions provided in the site-specific safety plan in order to facilitate the inspection process.

Knowledge

1. Applicable regulations, consensus codes, best practices, and local codes
2. Insurance loss control requirements
3. Site-specific safety plans
4. Location of program and certification documents and records
5. Regulatory inspection process, employer and employee rights, and expectations
6. Regulatory jurisdictions
7. Communications requirements
8. Types of consequences
9. Conflict resolution strategies

Skills

1. Using conflict resolution techniques
2. Mitigating identified hazards in a timely manner
3. Communicating effectively in speech and writing
4. Coordinating jobsite personnel
5. Using effective documentation techniques (e.g., note taking, photography, taking measurements)

CHST Blueprint and Examination Specification (cont'd)

DOMAIN 3 Training • 27%

Task 1

Determine training needs based on job safety analyses, regulatory requirements, trends, and/or observations made in worksite audits in order to develop appropriate training.

Knowledge

1. Site-specific safety plans
2. Job safety analysis content
3. Applicable regulations, consensus codes, best practices, and local codes
4. Industry-related injury and illness trends
5. Craft-specific injury and illness trends
6. Hazards associated with falls, struck by, electricity, caught between/crushing
7. Effective training techniques
8. Characteristics of worksite personnel (e.g., education level, language proficiency, English as a foreign language)
9. Training needs assessment procedures
10. Available delivery methods and instructional materials

Skills

1. Applying regulations and consensus standards
2. Evaluating job safety analysis information, observations, and trends for relevant information
3. Matching training to the characteristics and needs of worksite personnel
4. Conducting perception surveys

Task 2

Deliver training that addresses required program elements using program management guidelines, on-the-job training and evaluation, and formal and informal resources in order to deliver appropriate training.

Knowledge

1. Site-specific safety plans
2. Job safety analysis content
3. Applicable regulations, consensus codes, best practices, and local codes
4. Industry-related injury and illness trends
5. Craft-specific injury and illness trends
6. Hazards associated with falls, struck by, electricity, caught between/crushing
7. Demographics of employees and their skill level
8. Training objectives
9. Instructional methods
10. Audiovisual and other instructional equipment
11. Communication strategies
12. Time management strategies
13. Conflict resolution strategies

Skills

1. Teaching to achieve training objectives
2. Using available multi-media training techniques to deliver the program
3. Adapting structured programs to local needs
4. Evaluating competence and employee feedback to determine if changes are needed
5. Communicating effectively in speech and writing
6. Engaging the audience
7. Resolving conflicts

Task 3

Conduct site-specific job safety orientation and training using appropriate instructional methods in order to address jobsite hazards and abatement procedures as identified in the job safety analyses.

Knowledge

1. Site-specific safety plans
2. Job safety analysis content
3. Applicable regulations, consensus codes, best practices, and local codes
4. Industry-related injury and illness trends
5. Craft-specific injury and illness trends
6. Hazards associated with falls, struck by, electricity, caught between/crushing
7. Demographics of employees and their skill level
8. Training objectives
9. Instructional methods
10. Audiovisual and other instructional equipment
11. Communication strategies
12. Time management strategies
13. Conflict resolution strategies
14. Human behavior, both safe and at-risk

Skills

1. Teaching to achieve training objectives
2. Using available multi-media training techniques to deliver the program
3. Adapting structured programs to local needs
4. Evaluating competence and employee feedback to determine if changes are needed
5. Communicating effectively in speech and writing
6. Engaging the audience
7. Resolving conflicts

CHST Blueprint and Examination Specification (cont'd)

DOMAIN 3 (continued) Training • 27%

Task 4

Participate in jobsite safety meetings with all crafts by leading discussions, demonstrating safe practices, etc., in order to inform jobsite personnel of potential risks.

Knowledge

1. Site-specific safety plans
2. Job safety analysis content
3. Applicable regulations, consensus codes, best practices, and local codes
4. Industry-related injury and illness trends and at-risk behavior
5. Craft-specific injury and illness trends
6. Hazards associated with falls, struck by, electricity, caught between/crushing
7. Demographics of employees and their skill level
8. Training objectives
9. Scope of work for each craft on the jobsite
10. Assessment strategies to determine that jobsite supervisors are able to lead safety meetings

Skills

1. Applying regulations and consensus standards
2. Evaluating job safety analysis information, observations, and trends for relevant information
3. Using available multi-media training techniques to deliver the program
4. Communicating effectively in speech and writing
5. Understanding human behavior in the context of worksite safety
6. Interpreting job safety analyses
7. Complying with the client's safety guidelines and procedures
8. Assessing the skill levels of crafts people and supervisors
9. Facilitating discussion of topics identified by meeting participants
10. Accessing current information (e.g., regulations)
11. Resolving conflicts

DOMAIN 4 Professional Responsibility • 4%

Task 1

Maintain complete and accurate records in all aspects of the safety program in accordance with established protocol in order to document interventions, losses, and audit findings and to support future decision making.

Knowledge

1. Regulatory record keeping requirements
2. Other record keeping requirements (e.g., company protocol on accident investigation, audits, inspections)
 3. Computer file management
 4. Physical file management
5. Security and confidentiality requirements

Skills

1. Using information technology systems
2. Organizing information
3. Organizing documents
4. Applying regulations and standards
5. Thinking critically

Task 2

Maintain ongoing competence by participating in the Recertification program in order to ensure currency and adhere to best practices.

Task 3

Adhere to ethical standards for behavior in accordance with the BCSP Technician and Technologist Code of Ethics in order to protect the interests of stakeholders.

PREPARING FOR THE CHST EXAMINATION

You may use various approaches to prepare for the CHST examination, including:

- Performing individual study.
- Participating in informal study groups.
- Attending formal review courses.
- Completing practice examinations.

Some keys to success include:

- Knowing your strengths and weaknesses.
- Having an examination preparation plan.
- Developing a test-taking strategy.
- Understanding how to use your calculator.

Knowing Your Strengths and Weaknesses

A self-evaluation will help you determine how well you know various subjects included on the CHST examination. Simply rate yourself on each task and associated subject/knowledge area included on the examination. Focus especially on the subject/knowledge statements, since they form the basis for examination items. The construction safety discipline requires knowledge of many different subjects.

Having an Examination Preparation Plan

You can use your ratings to help establish a study plan. The examination blueprint shows how the examination items on an examination are distributed across tasks. While the exact number of items devoted to each task may vary on an actual examination, one can estimate about how many items may be devoted to each particular task and associated subject/knowledge area by assuming a uniform distribution within a task.

The total number of correct items on the CHST examination determines whether you pass. The goal is to get enough items correct to pass. Scoring well in one task can compensate for a weaker score in another task. However, there may not be enough items in your strong areas to achieve a passing score. Most likely you will have to get items correct in your moderate and weak areas.

Use this information to form a preparation strategy. If you know a task well and are likely to get most items for that task correct on the examination, you have few additional opportunities to increase your score within that task. If you are likely to get few items correct for another task, you have a larger number of chances to gain points by studying that task and its associated subject/knowledge areas.

Convert your task strengths and weaknesses into a study plan that is likely to increase your overall examination score. You will want to refresh your knowledge in all tasks. It is also a good idea to study tasks that offer the greatest opportunity to increase your overall score.

Make a chart of tasks. List for yourself how you will prepare for each task. You may want to identify study hours for each, create a study schedule, or even chart out how you plan to prepare for each task (reading, practicing working calculations, study group, refresher course, etc.). A list of published references providing reasonable coverage on the subject matter associated with the CHST examinations starts on page 22.

Note that knowledge and understanding are essential in passing the examinations. Relying only on practice examination questions is not the best way to increase knowledge and understanding that form the foundation for examination questions.

Developing a Test-taking Strategy

Knowing how to take examinations will help improve your score. The CHST examination uses multiple-choice items. Each item has one correct answer and three incorrect answers. Remember, the goal is to get as many items correct as possible. There is no penalty on the CHST examination for incorrect answers. Only correct answers count toward reaching the passing score. All items have the same value.

Understand Item Construction

A four-choice, objectively scored examination item contains an item stem and four possible answers. The premise, or lead-in statement or question, is called the stem. One of the choices is correct and three are not.

Guess Intelligently

If you do not know the answer to an item or are not sure about it, you should guess intelligently. Look for choices that you know are incorrect or do not appear as plausible as others. Choose your answer from among the remaining choices. This increases your odds of selecting a correct answer.

Read the Items Carefully

Read each item carefully. Consider the item from the viewpoint of an examination writer. Look for the item focus. Each item evaluates some task or a subject/knowledge area. Try to identify what knowledge the item is trying to test. Avoid reading things into an item. The item can only test on the information actually included. Recognize that the stem for some items may include information that is not needed to answer the question.

Consider the Context

Often an item is framed around a particular industry or situation. Even if you do not work in that industry or have not experienced a particular situation, the item may be testing knowledge that you have. Avoid dismissing an item because of the context.

Use Examination Time Wisely

When taking your examination, complete those items first that you know or can answer quickly. Then go back to items that were difficult for you or required considerable time to read, analyze, or compute. This approach allows you to build your score as quickly as possible. You may want to go back over skipped or marked items several times.

Complete Skipped Items

After you have gone through the examination once or if you are running out of time, look for items that you have not answered. Select an answer for any skipped or incomplete item. By chance alone, you can get one of every four correct. Wrong answers have no penalty.

Go Back to Troublesome Items

Mark items that you are not sure about or items that are difficult for you. After you have worked through the entire examination, go back to marked items. Reread the items and study the choices again. You may recall some knowledge or information that you had not considered earlier and be able to answer the item correctly. You may also be able to eliminate a choice that is not correct and increase your chances of guessing the correct answer.

Understanding How to Use Your Calculator

Some items on the CHST examination require completing calculations to obtain the correct answer. You must bring your own calculator(s) and your calculator(s) must meet

BCSP calculator rules (page 25). Make sure you know how to use your calculator. You can waste valuable time figuring out how to use it after you are at the examination. You can also make errors in computations if you have not practiced using your calculator. It is a good idea to practice working solutions to computational problems to remember the correct procedures.

The CHST Self-assessment Examination

BCSP publishes a self-assessment examination for the CHST examination. Many candidates find it helpful in examination preparation. It can help diagnose how well you know the body of knowledge and help refresh test-taking skills.

To order a self-assessment examination visit the BCSP website at www.bbsp.org/chst.

The self-assessment examination is 50% of the length of a full examination. It contains exam-like items. The self-assessment examination document includes scoring sheets and a chart of correct answers. It also includes solutions to computational items and explanations for correct answers for other items, along with detailed references.

Other Review and Study Sources

A number of professional membership organizations, trade organizations, universities, and private companies offer study courses, software, and materials to assist candidates with preparing for the CHST examination. Because candidates for the CHST examination often ask where to locate review courses and materials, Table 4 on page 21 is provided as a courtesy. It does not include all providers nor is it updated regularly.

Other than materials copyrighted and/or published by BCSP (e.g., *Candidate Handbook*, self-assessment examination), BCSP does not have any involvement in the development, content, or distribution of any courses or materials associated with preparing for BCSP certification examinations. BCSP does not endorse any of the providers listed, nor does BCSP evaluate the providers or the providers' materials for consistency with the CHST examination blueprint.

Contact the sources directly about materials, course schedules, fees, or matters related to satisfaction with their products or services.

Examination Security

A key to a successful and respected certification program is examination security. Without it, a program has little value. BCSP relies on the ethical behavior of candidates and certificants to maintain the security of BCSP examinations.

The only information BCSP provides about the content of the CHST examination is the examination blueprint (pages 14-18). The blueprint is available to anyone. When those who hold the CHST designation or those who are pursuing the CHST designation reveal information about the content of the CHST examination (other than that which is on the published CHST examination blueprint), they violate the agreement all candidates accept when they apply for certification and when they take an examination.

BCSP copyrights the CHST examination. Applicants, candidates, or certificants who reveal information about the content of BCSP examinations through any means also violate the BCSP Discipline Policy and the Technician and Technologist Code of Ethics.

BCSP has taken action and will continue to take action against individuals who violate this trust. Penalties include permanently barring individuals from pursuing any BCSP designation and revoking their BCSP certifications, in addition to other legal remedies.

In addition, BCSP will pursue legal action against organizations or individuals not seeking certification who reveal information about the content of the CHST examination (other than that which is on the published CHST examination blueprint).

Table 4. Review and Study Sources

REVIEW AND STUDY SOURCES	
C = Course G = Guide S = Software	
American Society of Safety Engineers.....	C
1800 East Oakton Street Des Plaines, IL 60018-2187 (847) 699-2929 www.asse.org	
Datachem Software	S
69 Milk Street, Suite 300 Westboro, MA 01581 (800) 377-9717 www.datachemsoftware.com	
National Center for Construction Education and Research.....	C, G
P.O. Box 141104 Gainesville, FL 32614-1104 (352) 334-0911 www.nccer.org	
Professional Safety Associates	C
1027 North Range Avenue Denham Springs, LA 70726 (225) 665-6000 www.professionalsafety.com	
Span International Training	C, G
4226 Greenbriar Drive Nixa, MO 65714-8131 (888) 589-6757 www.spantraining.com	

PUBLISHED REFERENCES PRESENTING COVERAGE OF SUBJECT MATTER ASSOCIATED WITH THE CHST EXAMINATION BLUEPRINT

You should also draw on study references in your own library or a company library. These published references provide reasonable coverage on the subject matter associated with the CHST examination blueprint. Examination items are not necessarily taken directly from these sources. You may have previous or later editions of these or other references available that also present acceptable coverage of the subject matter.

Reference Name	Domains Covered by Reference			
	1	2	3	4
ABS Consulting, <i>Root Cause Analysis Handbook: A Guide to Effective Incident Investigation</i> , Government Institutes, Rockville, MD, 1999.	•			
American Conference of Governmental Industrial Hygienists, <i>Threshold Limit Values (TLVs®) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs®)</i> , Cincinnati, OH, 2003.		•		
American Institute of Steel Construction, <i>Manual for Steel Construction</i> , 9 th Edition, Chicago, IL, 1989.		•		
Basic textbooks in mathematics, chemistry, physics, statistics, psychology, biological sciences, communications, training and business.		•		
Berger, E. H., et.al. (editors), <i>The Noise Manual</i> , 5 th Edition, AIHA Press, Fairfax, VA, 2000.		•		
Brauer, Roger, L., <i>Safety and Health for Engineers</i> , John Wiley and Sons, New York City, NY, 1990.	•	•	•	•
<i>Code of Federal Regulations</i> , Title 29 (Labor), Part 1903.	•			
<i>Code of Federal Regulations</i> , Title 29 (Labor), Part 1904.	•			
<i>Code of Federal Regulations</i> , Title 29 (Labor), Part 1910.	•	•	•	•
<i>Code of Federal Regulations</i> , Title 29 (Labor), Part 1926.	•	•	•	•
Cote, Arthur (editor), <i>Fire Protection Handbook</i> , 19 th Edition, National Fire Protection Association, Quincy, MA, 2003.	•	•		
DiNardi, Salvatore (editor), <i>The Occupational Environment: Evaluation and Control</i> , 2 nd Edition, AIHA Press, Fairfax, VA, 2003.		•		
Ellis, J. N., <i>Introduction to Fall Protection</i> , 3 rd Edition, American Society of Safety Engineers, Des Plaines, IL, 2001.	•	•		
Field Safety, National Center for Construction Education and Research, Gainesville, FL, 2003.		•	•	
Frein, Joseph P. (editor), <i>Handbook of Construction Management and Organization</i> , 2 nd Edition, Van Nostrand Reinhold, New York, NY, 1980.	•		•	
Grimaldi, John V., and Simonds, Rollin H., <i>Safety Management</i> , 5 th Edition, Irwin, Homewood, IL, 1989.	•			
Hill, Darryl C. (editor), <i>Construction Safety Management and Engineering</i> , American Society of Safety Engineers, Des Plaines, IL, 2004.	•	•	•	•
Hinze, Jimmie W., <i>Construction Safety</i> , Prentice Hall, Columbus, OH, 1997.	•	•	•	
MacCollum, David V., <i>Construction Safety Planning</i> , Van Nostrand Reinhold, New York, NY, 1995.	•	•	•	
MacCollum, David V., <i>Crane Hazards and Their Prevention</i> , American Society of Safety Engineers, Des Plaines, IL, 1993.		•		

Reference Name	Domains Covered by Reference			
	1	2	3	4
Manual of Accident Prevention for Construction, 8 th Edition, Associated General Contractors of America, Arlington, VA, 2003.		•	•	
Moran, Mark M., <i>Construction Safety Handbook</i> , Government Institutes, Rockville, MD, 2003.	•	•	•	
National Fire Protection Association, <i>National Fire Codes</i> , Quincy, MA.		•		
National Institute for Occupational Safety and Health, <i>Certified Equipment List</i> , www.cdc.gov/niosh/celpamp.html .	•	•		
National Safety Council, <i>Accident Prevention Manual for Business and Industry, Administration and Programs</i> , 12 th Edition, NSC Press, Itasca, IL, 2001.	•	•	•	•
National Safety Council, <i>Accident Prevention Manual for Business and Industry, Engineering and Technology</i> , 12 th Edition, NSC Press, Itasca, IL, 2001.		•		
National Safety Council, <i>Occupational Health and Safety</i> , 3 rd Edition, NSC Press, Itasca, IL, 2000.	•	•	•	
National Safety Council, <i>Supervisor's Safety Manual</i> , 9 th Edition, NSC Press, Itasca, IL, 1997.	•		•	•
Peyton, Robert X., and Rubio, Toni C., <i>Construction Safety Practices and Principles</i> , Van Nostrand Reinhold, New York, NY, 1991.	•	•	•	
Plog, Barbara (editor), <i>Fundamentals of Industrial Hygiene</i> , 5 th Edition, National Safety Council, NSC Press, Itasca, IL, 2002.		•		
Public Law 91-596, <i>Occupational Safety and Health Act of 1970</i> .	•			
Reese, Charles D., and Eidson, James, V., <i>Handbook of OSHA Construction Safety and Health</i> , Lewis Publishers, Boca Raton, FL, 1999.	•	•	•	
Rossnagel, W. E., Higgins, L. R., and MacDonald, J. A., <i>Handbook of Rigging</i> , 4 th Edition, McGraw-Hill Book Co., Highstown, NJ, 1993.		•		
Roughton, Jane, and Whiting, Nancy, <i>Safety Training Basics</i> , ABS Consulting/Government Institutes, Rockville, MD, 2000.			•	
Safety Technology, National Center for Construction Education and Research, Gainesville, FL, 2003.		•	•	

TAKING THE CHST EXAMINATION

BCSP uses computer delivered examinations at testing centers operated by Pearson VUE. You do not need computer skills. Once BCSP makes you eligible for the CHST examination and you are ready to take the examination, you need to take the following actions.

- Locate a Pearson VUE Testing Center
- Purchase an Examination Authorization
- Receive Your Examination Authorization Letter
- Schedule an Examination Appointment
- Take the Examination

After you take an examination, BCSP will mail your official examination result and related materials to you.

Locate a Pearson VUE Testing Center

To ensure that a Pearson VUE Testing Center is suitably convenient to you, visit www.pearsonvue.com/BCSP. Click on the "Locate a Test Center" link. If you do not have Internet access, contact BCSP to help you find a nearby testing center or call +1 866-717-3653 (U.S. and Canada) or +1 952-681-3872 (Americas Region (Toll)).

Purchase an Examination Authorization

After BCSP sends you a notice that you are eligible to sit for a BCSP examination, you may register with BCSP to take an examination at any time within your eligibility time limit rules (page 8).

If you contact BCSP by phone to register and pay for an examination authorization, a BCSP customer service professional will verify that you are eligible for the examination and ask you for credit card/debit card information. You may also pay for your examination authorization by personal check or money order by following the instructions in your notice of eligibility letter.

Receive Your Examination Authorization Letter

After you pay for an examination authorization, BCSP will mail or email you an Examination Authorization Letter. In it are detailed instructions for scheduling an examination appointment at a Pearson VUE testing center. Have this letter available when you create your online Web account to schedule your appointment online, or

when you make your appointment with Pearson VUE by phone.

Schedule an Examination Appointment

After you receive your Examination Authorization Letter, you must schedule an examination appointment directly with Pearson VUE. A brochure sent with your Examination Authorization Letter will have additional details for scheduling and rescheduling (if necessary) your examination appointment. Some of the rules are outlined on pages 26 and 27 of this publication.

BCSP examinations are available at Pearson VUE testing centers around the world. To locate a testing center near you, visit www.pearsonvue.com/BCSP. All centers are open during normal weekday business hours, and some have weekend and holiday hours.

Make your appointment as soon as possible after you receive your Examination Authorization Letter since available appointment times at Pearson VUE testing centers are reserved early. BCSP strongly recommends making your appointment eight or more weeks in advance. If you wait too long and find that you are unable to make an appointment to take your examination within your examination authorization period, you will forfeit your examination authorization fee, and you will have to purchase a new examination authorization to sit for the examination, if you are still eligible.

When you make your appointment, Pearson VUE will send you a confirmation letter by email or mail containing your examination appointment details along with driving instructions and other information. After scheduling your appointment, BCSP suggests that you confirm your appointment location, date, and time online at www.pearsonvue.com/BCSP.

Take the Examination

Arrival and Preliminary Procedures

Consider arriving at the Pearson VUE testing center 30 minutes before your appointment starting time to help ensure your sign-in procedure goes smoothly. The Pearson VUE testing center staff will tell you where to secure your coat and other personal belongings and show you the location of the restrooms. If you arrive 15

minutes or more after your appointment starting time, you will be refused admission, and you will forfeit your examination authorization fee.

Presenting Your Identification

The testing center staff will ask you to present acceptable identification and ask you to sign your name in a logbook. Depending on where you are scheduled to take your examination, the testing center staff also may take your picture and obtain electronic fingerprint data to confirm your identity.

You must bring a valid, unexpired government-issued identification document bearing both your picture and signature. Your name on this identification document must exactly match the name you used when you applied for certification with BCSP.

If you are not a citizen of the country in which you are testing, the only acceptable identification document is your valid, unexpired passport.

Examples of acceptable identification for testing **within** the country of your citizenship include your valid, unexpired passport or your valid, unexpired, non-temporary North American state or provincial driver's license/identification card, military identification card, national identification card, European Identity card, or permanent resident card. If the identification document you present is expired, invalid, or does not have both your picture and signature, you will be refused admission, and you will forfeit your examination authorization fee.

There are additional identification requirements for foreign nationals testing in the People's Republic of China and Hong Kong, and for citizens of countries against which the U.S. is enforcing economic and trade sanctions. If you are in one of the above situations, or if you have any questions related to the presentation of acceptable identification, contact BCSP before scheduling your examination appointment.

Final Sign-in Procedures

The testing center staff will then provide you with materials for working out calculations by hand. If you intend to take one or two calculators with you into the secure testing room, the testing center staff will inspect each calculator and verify that each calculator complies with the published BCSP calculator rules in effect when you sit for the examination.

BCSP Calculator Rules

The following are the **only** makes and models of calculators permitted.

- Casio models FX-115, FX-250, FX-260, FX-300
- Hewlett-Packard models hp 9, hp 10, hp 12, hp 30
- Texas Instruments models TI-30, TI-34, TI-35, TI-36

Any version of these makes and models may be used. For example, a Hewlett-Packard hp 30s is permitted, as is a Texas Instruments TI-30Xa.

Examination Integrity and Security

After the sign-in procedure is completed, the testing center staff will escort you into the secure testing room and seat you at your computer testing workstation. Other than the materials provided by the testing center staff for working out calculations and your authorized calculators, you cannot take any notes, books, papers, purses, hats, coats, jackets, pagers, mobile telephones, or other materials or electronic devices into the secure testing room. In addition, no food, drinks, or tobacco products are permitted in the secure testing room at any time. All such items must be stored outside the secure testing room. You may access only your stored food, drinks, or tobacco products (when permitted by local law) during self-scheduled breaks you take outside the secure testing room. You may not access your other personal belongings at all until you complete your examination. During breaks, you are not permitted to have contact with anyone other than the testing center staff.

Therefore, for the duration of the examination (i.e., while your examination clock is running, including during self-scheduled breaks), you **shall not**:

- Consult verbally, electronically, or in writing with any person other than testing center staff;
- Consult any written or electronic reference other than your authorized calculator(s) and the materials for working out calculations provided by the testing center staff;
- Leave your computer testing workstation, except to take a self-scheduled break **within** the building (or part of the building) controlled by Pearson VUE; or
- Leave the building (or part of the building) controlled by Pearson VUE.

Several security procedures are in place at Pearson VUE testing centers. Pearson VUE formally documents all irregularities, and BCSP evaluates these irregularities to determine appropriate action. Depending on the irregularity, BCSP may invalidate your examination and take additional disciplinary actions in accordance with

BCSP's Discipline Policy if you access prohibited materials, have contact with anyone except testing center staff, leave the testing center while your examination clock is running, engage in unethical, disruptive, or unprofessional conduct, or violate any other BCSP or Pearson VUE security procedures at a testing center.

Examination Tutorial

When you are ready to begin your examination, you will log on as instructed by the testing center staff. There will be several introductory screens, including a screen where you will have to accept BCSP's Security and Confidentiality Agreement prior to actually viewing any examination content. Once you accept BCSP's Security and Confidentiality Agreement, you will be able to complete a brief tutorial to become familiar with the features of the examination delivery software and the online *Examination Reference* before beginning the examination. BCSP **strongly** recommends that you complete this tutorial. The time you spend on this tutorial does not count toward your actual testing time.

Examination Duration

Once you finish the online tutorial, your examination clock will actually begin. You will have four hours to complete the CHST examination. At the end of your examination (after you are shown your unofficial result), you will be asked to complete a post-examination survey.

Your time remaining will appear on the computer screen. **If you leave your computer testing workstation for any reason during the examination, your clock will continue to run.**

Examination Format

One item will appear on the screen at a time. You may answer the item, mark the item for later review, or skip the item completely. Even if you mark an item because you intend to review the item later, BCSP recommends that you select an answer anyway in case you run out of time and are unable to return to review the marked item.

After you have seen all of the examination items, you will be presented with a review screen that presents a list of all items and your responses. This list will also show whether you skipped any items or marked any for later review. You may easily return to any item on this table by simply clicking on the item using the computer mouse. Once you return to the item, you may change your answer selection, if desired, and return to the review screen.

The 2-page BCSP *Examination Reference* will be available for you on every item by clicking the button on your computer screen labeled "Exam Reference".

Examination Environment

You may find that the examination room is too cool or too warm or that the computer testing workstation is not ergonomically designed for you. In addition, you may be distracted during an examination by noises such as mouse clicks and typing by other examinees in the room. BCSP does everything possible to help make your examination experience a positive one, and many of these distractions affect people differently. Therefore, you may want to plan for them. For example, you should consider wearing clothing that will allow you to remain comfortable in either a cool or warm environment, and consider having earplugs to block as much environmental noise as possible. You should contact the testing center staff if the environmental conditions in the secure testing room are unreasonable.

Completing the Examination and Getting Your Result

Once you have been shown your unofficial examination result, you will be asked to complete a post-examination survey. Please complete this survey to help BCSP understand your certification and testing experience and help us address any problems you encountered. After submitting your survey responses, you may leave your computer testing workstation and find a member of the testing center staff to check out.

During the check out procedure, you will have to return any materials given to you by the testing center staff. The testing center staff will then give you a printed copy of your unofficial examination result. Within three weeks, BCSP will mail your official result and score report to you.

Late Arrivals and Missed Appointments

If you fail to keep your scheduled examination appointment, if you arrive more than 15 minutes beyond the starting time of your scheduled appointment, or if you fail to present acceptable identification to the testing center staff when you arrive for your scheduled appointment, you will be refused admission, and you will forfeit your examination authorization fee. To sit for the examination after having been refused admission, you must pay a new examination authorization fee, if you are still eligible.

Cancelling and Rescheduling Examination Appointments

If you need to cancel and reschedule an examination appointment, there must be one or more full business days remaining before the date of your scheduled appointment. Appointments **cannot** be canceled and rescheduled if there is less than one full business day before the date of your scheduled examination appointment. To reschedule an examination appointment, a Pearson VUE testing center must have an appointment time available within the remaining time in your examination authorization period. If you have to cancel and reschedule your examination appointment toward the end of your 120-day examination authorization period, you should consider purchasing a one-time, 60-day examination authorization extension from BCSP. The 60-day examination authorization extension is not available for candidates testing outside the U.S. and Canada.

Examination Authorization Extensions

After registering and paying for an examination authorization, you will have 120 days to take the examination. If you need to extend the 120-day examination authorization period, and you are testing in the U.S. or Canada, BCSP allows you to purchase a one-time, 60-day extension. If you are eligible for this one-time examination authorization extension, BCSP must receive and acknowledge your payment for the extension at least two full business days before the date your current 120-day examination authorization period expires.

If you scheduled an appointment, you are still responsible for canceling that appointment and rescheduling it even if you purchased an examination authorization extension. If you fail to cancel and reschedule your current appointment, you will forfeit both your examination authorization and extension fees.

Taking the CHST Examination for Recertification Credit

A CHST in good standing may take and pass the CHST examination during the last year of a Recertification cycle to fulfill all Recertification requirements for that cycle. To take advantage of this Recertification option, contact BCSP to pay for a CHST examination authorization. If you pass the examination, your record will be automatically updated to reflect your compliance with all Recertification requirements for that cycle. **NOTE:** CHSTs must pass the CHST examination **during** the last year of a Recertification cycle to receive Recertification credit.

Retesting

If you fail your examination, you may register and pay to retake the examination after you receive your official result and score report from BCSP. There is no limit to the number of times you can register for and retake the examination, as long as you remain eligible. You do not have to reapply for the CHST credential after failing an examination unless your overall eligibility has expired. Eligibility time limit rules are summarized on page 8 of this publication.

Examinations for Candidates Requiring Special Accommodations

If you require special examination facilities or arrangements because of one or more documented disabilities (consistent with the Americans with Disabilities Act), you must inform BCSP of these needs at the time you purchase an examination authorization. You will be asked to provide official medical documentation describing the nature of your disabilities, the precise special accommodation(s) recommended for you, and the name, address, phone number, and qualifications of the licensed healthcare professional validating your request. Pearson VUE can accommodate almost all requests for special accommodations. However, if special accommodations are not available through a Pearson VUE testing center, BCSP will make other arrangements to ensure that your needs are met. **If, at the time you purchase your examination authorization, you fail to inform BCSP of your need for one or more special accommodations, you will not receive them when you arrive for your examination appointment. Your special accommodations will not be granted until BCSP receives and reviews your official medical documentation and approves your request.**

Once BCSP approves your request for special accommodations, BCSP will notify you and provide you with additional instructions describing how you will need to schedule your examination appointment. **Note:** Be prepared to send BCSP your medical documentation as soon as you purchase your examination authorization. Your 120-day examination authorization clock starts on the day you purchase your examination authorization even if you are requesting one or more special accommodations.

Examinations for Candidates Using External Assistive Devices

If you routinely use (or expect use) external assistive devices or equipment such as crutches, a wheelchair, a cane, a low vision optical aid, or a hearing aid, you must inform BCSP of your need to use these external assistive devices in the secure testing room at the time you purchase an examination authorization. BCSP must inform Pearson VUE of your need to use one or more external assistive devices so the Pearson VUE testing center staff can be prepared to perform appropriate security inspections on these assistive devices when you arrive. If you fail to inform BCSP of your need to use one or more external assistive devices, you may not be permitted to use your assistive devices in the secure testing room.

Other Testing Arrangements

If there is no Pearson VUE testing center near you and if you are not planning to travel to a city with a Pearson VUE testing center, BCSP can make special arrangements to deliver a BCSP examination by special administration (including for U.S. military personnel in DANES facilities). Taking a BCSP examination by special administration is more expensive than taking a computer-delivered BCSP examination in a Pearson VUE testing center. If you believe that you will need a special examination administration, please contact BCSP five or more months prior to your desired examination date so we can research providing a special administration for you. Once we understand the special administration rules and procedures, BCSP will contact you to explain the special administration rules and procedures and to provide you with the specific examination authorization fee for your case.

SUMMARY OF COMPUTER-DELIVERED EXAMINATION RULES (Testing Within the United States and Canada)

When making plans to take the CHST examination in the United States, its territories, or Canada, consider the following rules for computer-delivered examinations. All fees are subject to change.

Once you register and pay for an examination authorization, you have 120 days from your registration date to schedule an appointment with Pearson VUE and take the BCSP examination. If you need additional time beyond 120 days, you may purchase a one-time, 60-day extension of your examination authorization. Therefore, a maximum of 180 days is available for you to take your examination after you register and pay for your examination authorization. No additional extensions to your examination authorization are permitted beyond the one-time, 60-day extension.

To schedule a new appointment or to cancel/reschedule an existing examination appointment, BCSP strongly recommends that you visit www.pearsonvue.com/BCSP and register online. You may also call the Pearson VUE North American registration center at +1 866-717-3653 (8:00 a.m. – 8:00 p.m. weekdays U.S. Eastern Time, closed on U.S. holidays). You **cannot** schedule a new appointment or cancel/reschedule an existing appointment directly with a local Pearson VUE testing center or directly with BCSP. When you make or change your appointment with Pearson VUE, have your Examination Authorization Letter available. After scheduling or rescheduling your examination appointment, confirm your appointment location, date, and time online at www.pearsonvue.com/BCSP.

There must be one or more full business days remaining prior to the date of your existing examination appointment for you to cancel/reschedule the appointment. Even if you properly cancel an existing examination appointment, to reschedule it, there must be a testing center with an available appointment during the time remaining in your examination authorization period.

If you have already made an examination appointment within the original 120-day examination authorization period, but you decide to purchase the one-time, 60-day extension to your examination authorization, you remain responsible for canceling and rescheduling your existing appointment.

You forfeit your examination authorization fee when you:

- Fail to take the examination during the 120-day examination authorization period and you did not purchase a one-time, 60-day examination authorization extension during the 120-day period; or
- Fail to take the examination during the 60-day extension of the 120-day examination authorization period even if you purchased the one-time, 60-day extension; or
- Fail to show up for any scheduled examination appointment (even if you purchased an extension); or
- Are more than 15 minutes late for any scheduled examination appointment; or
- Fail to present acceptable identification to the Pearson VUE staff; or
- Fail to follow BCSP's or Pearson VUE's security and administrative procedures at the testing center.

If you forfeit your examination authorization fee, you must register and pay for a new 120-day examination authorization to take the examination, if you are still eligible.

SUMMARY OF COMPUTER-DELIVERED EXAMINATION RULES (Testing Outside the United States and Canada)

When making plans to take the CHST examination outside the United States or Canada, consider the following rules for computer-delivered examinations. All fees are subject to change.

Once you register and pay for an examination authorization, you have 120 days from your registration date to schedule an appointment with Pearson VUE and take the BCSP examination.

To schedule a new appointment or to cancel/reschedule an existing examination appointment, BCSP strongly recommends that you visit www.pearsonvue.com/BCSP and register online. You may also call the appropriate Pearson VUE regional registration center at one of the phone numbers shown below. You **cannot** schedule a new appointment or cancel/reschedule an existing appointment directly with a local Pearson VUE testing center or directly with BCSP. When you make or change your appointment with Pearson VUE, have your Examination Authorization Letter available. After scheduling or rescheduling your examination appointment, confirm your appointment location, date, and time online at www.pearsonvue.com/BCSP.

Regional Registration Centers Outside the United States and Canada

<i>Mexico, Central America, South America, Caribbean (Except U.S. Territories)</i> 1-952-681-3872; 8:00 a.m. – 8:00 p.m. weekdays U.S. Eastern Time (closed on U.S. holidays)
<i>Asia, Australia, New Zealand, Pacific Islands (Except U.S. Territories)</i> 61-2-9478-5400; 8:30 a.m. – 6:00 p.m. weekdays Australian Eastern Time (closed on Australian holidays)
<i>Europe, Middle East, Africa</i> 44-161-855-7455; 8:00 a.m. – 6:00 p.m. weekdays Central European Time (closed on UK holidays)

There must be one or more full business days remaining prior to the date of your existing examination appointment for you to cancel/reschedule the appointment. Even if you properly cancel an existing examination appointment, to reschedule it, there must be a testing center with an available appointment during the time remaining in your examination authorization period.

You forfeit your examination authorization fee when you:

- Fail to take the examination during the 120-day examination authorization period; or
- Fail to show up for any scheduled examination appointment; or
- Are more than 15 minutes late for any scheduled examination appointment; or
- Fail to present acceptable identification to the Pearson VUE staff; or
- Fail to follow BCSP's or Pearson VUE's security and administrative procedures at the testing center.

If you forfeit your examination authorization, you must register and pay for a new 120-day examination authorization to take the examination, if you are still eligible.

BCSP EXAMINATION REFERENCE

The two pages shown in this section (the *Examination Reference*) are provided online to CHST examination candidates during the actual examination. On every item, the *Examination Reference* will be available for viewing in the form shown in this section.

BCSP expects you to know simple formulas, mathematical functions, and similar information. In addition, BCSP expects you to have enough knowledge of a subject area to know what information in the *Examination Reference* is applicable to an item.

UNIT CONVERSIONS

Length

1 in = 2.54 cm 1 ft = 30.48 cm
 1 micron = 10^{-4} cm 1 mile = 5,280 ft

Volume

1 liter = 1.06 qt = 61.02 in³ = 0.03531 ft³

Mass

1 kg = 2.2 lb 1 lb = 454 gram

Pressure

1 atm = 14.7 psi
 = 760 mm Hg
 = 29.92 in Hg
 = 33.90 ft H₂O
 = 760 torr
 = 101.3 kPa

Temperature

$$t_{\text{C}} = \frac{(t_{\text{F}} - 32)}{1.8}$$

$$t_{\text{K}} = t_{\text{C}} + 273 \qquad t_{\text{R}} = t_{\text{F}} + 460$$

Radiation

1 rad = 10^{-2} gray
 1 rem = 10^{-2} sievert

PHYSICAL CONSTANTS

acceleration of gravity = 32.2 ft/sec² = 9.8 m/sec²

velocity of light = 3.0×10^8 m/sec

Planck's constant = 6.626×10^{-34} J-sec

Avagadro's number = 6.024×10^{23} / gram-mole

STANDARDS

STP (Physical Science) = 0° C and 1 atm

STP (Ventilation) = 70° F and 1 atm

air density = 0.075 lb/ft³ @ 70° F and 1 atm

STP (Industrial Hygiene) = 25° C and 1 atm

1 curie = 3.7×10^{10} becquerel

1 becquerel = 1 disintegration/sec

Density of Water

1 gram/cm³ = 1.94 slugs/ft³

(weight density = 62.4 lb/ft³)

Angles

$$1 \text{ radian} = \frac{180^\circ}{\pi}$$

Light

1 candela = 1 lumen/steradian

1 footcandle = 10.76 candela/m² = 10.76 lux

Magnetic Fields

1 tesla = 10,000 gauss

Energy

1 British thermal unit = 1,055 joules

1 faraday = 9.65×10^4 coulombs

1 gram-calorie = 4.19 joules

1 gram-mole @ 0° C and 1 atm = 22.4 liters

@ 25° C and 1 atm = 24.45 liters

1 ampere-hour = 3,600 coulombs

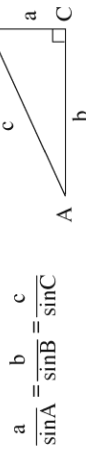
1 watt = 1 joule/sec = 1 ampere x 1 volt

1 kwh = 3.6×10^6 joules

TRIGONOMETRIC FUNCTIONS

$\sin A = a/c$ $\cos A = b/c$ $\tan A = a/b$

$c^2 = a^2 + b^2 - 2ab \cos C$



$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

QUADRATIC EQUATION

$x_1, x_2 = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

GEOMETRIC FORMULAS

Circle

$C = \pi D$

$A = \pi r^2$

Sphere

$S = 4\pi r^2$

$V = (4/3) \pi r^3$

STATISTICS AND PROBABILITY

$s = \sqrt{\frac{\sum(x^2)}{N-1}}$ $(x = X - \bar{X})$ $\sigma = \sqrt{\frac{\sum(x^2)}{N}}$

$r = \frac{N\sum(XY) - (\sum X)(\sum Y)}{\sqrt{[\sum(X^2) - (\sum X)^2][\sum(Y^2) - (\sum Y)^2]}}$

$x = X - \bar{X}$
 $y = Y - \bar{Y}$

$r = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$

MECHANICS

$F = \mu N$

P.E. = mgh

$F_1 D_1 = F_2 D_2$

P.E. = $\frac{kx^2}{2}$

$v = v_0 + at$

$p = mv$

$v^2 = v_0^2 + 2as$

$F = ma$

K.E. = $\frac{mv^2}{2}$

$W = Fs$

HEAT STRESS

WBGT = 0.7 WB + 0.3 GT
(Indoors; no solar heat load)

WBGT = 0.7 WB + 0.2 GT + 0.1 DB
(Outdoors; with solar heat load)

VENTILATION

$Q = AV$

$V = 4005 \sqrt{VP}$

$V = 4005 C_c \sqrt{SP_h}$

TP = SP + VP

NOISE

$L_w = 10 \log_{10} \frac{W}{W_0}$ $L_p = 20 \log_{10} \frac{p}{p_0}$

$T = \frac{8}{2^{[(L-90)/5]}}$

$dB_1 = dB_0 + 20 \log_{10} \left(\frac{d_0}{d_1} \right)$

TWA = $16.61 \log_{10} \left[\frac{D}{100} \right] + 90$

ELECTRICITY

$V = IR$

$P = VI$

$R_{series} = R_1 + R_2 + \dots + R_n$

$\frac{1}{R_{parallel}} = \frac{1}{R_1} + \frac{1}{R_2} + \dots + \frac{1}{R_n}$

CONCENTRATIONS OF VAPORS AND GASES

ppm = $\frac{\text{mg} / \text{m}^3 \times 24.45}{\text{MW}}$

$TLV_m = \frac{1}{\left(\frac{f_1}{TLV_1} + \frac{f_2}{TLV_2} + \dots + \frac{f_n}{TLV_n} \right)}$

GAS LAWS

$PV = nRT$

$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$

RADIATION

$I_2 = I_1 \frac{(d_1)^2}{(d_2)^2}$

$S \approx 6CE$

**Board of Certified
Safety Professionals
(BCSP)**
2301 W. Bradley Avenue
Champaign, IL 61821
Ph: +1 217-359-9263
Fax: +1 217-359-0055

**Construction Health and Safety
Technician®
CHST
APPLICATION FORM**



BCSP Use Only
Fees Paid _____
Comp Check _____
Personal Check _____
Accept for Review _____
Review Team No. _____

Please type or print. See CHST Candidate Handbook for instructions.

APPLICANT PERSONAL DATA

NAME <input type="checkbox"/> Mr. <input type="checkbox"/> Ms. (Last/Family)		(First)	(MI)	Maiden Name (if applicable)	Other Legal Name (if applicable)
HOME ADDRESS (Street Address)				(Apartment)	(Box Number)
(City)				(State/Province)	
(Zip/Postal Code)				(Country)	
PHONE NUMBERS (If outside the U.S. or Canada, include country and city codes)		Home Phone (Area Code & Number)		Work Phone (Area Code & Number)	
Mobile (Area Code & Number)		EMAIL ADDRESS(ES)			
				SOCIAL SECURITY NUMBER	
				BIRTH DATE (MM/DD/YY)	
				NAICS CODE (See Table 1 in Candidate Handbook)	
				Fax (Area Code & Number)	

COLLEGE EDUCATION *(For credit toward certification, you must enclose an official transcript in a sealed envelope from the university. Copies are not accepted.)*

COLLEGE OR UNIVERSITY (Name, City, State)	DATES ATTENDED		COURSE OF STUDY OR MAJOR	DEGREE EARNED	SEMESTER HOURS EARNED	TRANSCRIPT STATUS (Check one)
	FROM (Mo/Yr)	TO (Mo/Yr)				
						<input type="checkbox"/> Enclosed <input type="checkbox"/> To be sent <input type="checkbox"/> Not sending any
						<input type="checkbox"/> Enclosed <input type="checkbox"/> To be sent <input type="checkbox"/> Not sending any

SUMMARY OF EMPLOYMENT *(You must complete an Experience Form for each position you list below.)*

POSITION (List your most recent position first)	EMPLOYER	EMPLOYMENT DATES				MONTHS CLAIMED
		From		To		
		Mo	Yr	Mo	Yr	
1.						
2.						
3.						
4.						
5.						

CHST APPLICATION FORM *(continued)*

REFERENCES *(See CHST Candidate Handbook for instructions.)*

REFERENCE NAME	TITLE	PERIOD COVERED	PROFESSIONAL RELATIONSHIP
1.			
2.			

CURRENT LICENSES, REGISTRATIONS AND CERTIFICATIONS *(Check all that apply.)*

<input type="checkbox"/> CSP	<input type="checkbox"/> PE	<input type="checkbox"/> COHN-S	<input type="checkbox"/> STS
<input type="checkbox"/> CIH	<input type="checkbox"/> CHCM	<input type="checkbox"/> CPE	<input type="checkbox"/> Marine Chemist
<input type="checkbox"/> CHP	<input type="checkbox"/> CHMM	<input type="checkbox"/> RN	<input type="checkbox"/> Other: _____
<input type="checkbox"/> OHST/CLCS	<input type="checkbox"/> COHN	<input type="checkbox"/> RPT	

PROFESSIONAL SOCIETY MEMBERSHIPS *(Check all that apply.)*

<input type="checkbox"/> ACGIH	<input type="checkbox"/> ASSE	<input type="checkbox"/> HPS	<input type="checkbox"/> SFPE	<input type="checkbox"/> IIE	<input type="checkbox"/> IIE
<input type="checkbox"/> AIHA	<input type="checkbox"/> HFES	<input type="checkbox"/> NSMS	<input type="checkbox"/> SSS	<input type="checkbox"/> NSC	<input type="checkbox"/> Other: _____

PRIMARY SAFETY SPECIALTY *(Check the one safety specialty that best describes your overall qualifications.)*

<input type="checkbox"/> Occupational Safety	<input type="checkbox"/> Industrial Hygiene	<input type="checkbox"/> Radiation Safety
<input type="checkbox"/> General Safety	<input type="checkbox"/> Transportation Safety	<input type="checkbox"/> Product Safety
<input type="checkbox"/> Fire Protection	<input type="checkbox"/> System Safety	<input type="checkbox"/> Construction Safety
<input type="checkbox"/> Environmental	<input type="checkbox"/> Process Safety	<input type="checkbox"/> Other: _____

VALIDATION *(Be sure to sign and date your application or it cannot be processed. Your signature means you agree with the following statements.)*

1. Have you ever been convicted of a felony? YES NO

2. Have you been convicted of a misdemeanor within the last 5 years? YES NO

3. Do you have a record of any unethical behavior? YES NO

4. Have you ever had a professional registration, license or certification denied, suspended or revoked other than for lack of minimum qualifications, failure of examination, or failure to pay renewal fees? YES NO

(If you answered YES to any of the questions 1-4, you must complete the Criminal Conviction & Professional Registration, Certification or License Information Form available at www.bcsp.org/pdf/ccform.pdf).

5. I understand that any falsification of information on this application including any attachments or supplemental materials, provided now or later, may be cause for rejection or withdrawal of certification or such other action as BCSP may deem appropriate. I certify that the statements above (including any attachments submitted, now or later) are accurate to the best of my knowledge. I hereby authorize BCSP to verify any information or supplements submitted.

6. I agree to hold BCSP harmless from any and all liability in the event this application is rejected on the basis of information furnished to BCSP by me or other persons which would, in the judgment of BCSP, make me ineligible for certification.

7. With this application, I hereby authorize BCSP to publish in all of its directories or registries my name, city, state, country, and any certification it issues to me. BCSP will make every effort to keep your personal and examination information confidential. BCSP will obtain your approval prior to releasing information from your BCSP records, other than directories, verification of your certification to the public or a court subpoena for your records.

8. I agree to adhere to the *BCSP Technician and Technologist Code of Ethics* in its current and subsequent editions and, if I am certified, to meet the requirements for Recertification.

_____ Date _____ Signature _____

APPLICATION PAYMENT INFORMATION *(Fees are nonrefundable, nontransferable, and subject to change at any time.)*

\$140 APPLICATION FEE PAID BY	CREDIT/DEBIT CARD AUTHORIZATION	
<input type="checkbox"/> Check or Money Order Make payment in U.S. dollars drawn on a U.S. bank to: BCSP	<input type="checkbox"/> American Express <input type="checkbox"/> Discover <input type="checkbox"/> MasterCard <input type="checkbox"/> VISA	Credit/Debit Card Number Expiration Date (MMYY)
		Name as it appears on card CVV/CVV2
		Signature Date

Construction Health and Safety
Technician®
CHST
EXPERIENCE FORM



Please type or print. Provide all information requested. See CHST Candidate Handbook for instructions.

APPLICANT

APPLICANT NAME	_____			
	<i>First</i>	<i>MI</i>	<i>Last/Family</i>	<i>Maiden Name (if applicable) Other Legal Name (if applicable)</i>

POSITION

Position Title:		EMPLOYED IN POSITION	
		FROM (Mo/Yr)	TO (Mo/Yr)
Position Type:	<input type="checkbox"/> Full-Time (at least 30 hrs/wk) <input type="checkbox"/> Part-Time (less than 30 hrs/wk)	Portion of Position Time Involving Health and Safety Work: <input type="checkbox"/> 70-100% <input type="checkbox"/> 35-69% <input type="checkbox"/> Less than 35% <input type="checkbox"/> None	
Briefly describe four primary duties of this position:			
1.			
2.			
3.			
4.			

EXPERIENCE DATA FOR THIS POSITION (Enter months or hours in any applicable category.)

Construction Experience		Supervisor/Management Experience		Safety and Health Position	
No. of Months	No. of Hours	No. of Months	No. of Hours	No. of Months	No. of Hours

EMPLOYER DATA FOR THIS POSITION

Employer's Name	Employer's Phone (A/C) (Number)	Is construction a major portion of this company's business? <input type="checkbox"/> Yes <input type="checkbox"/> No
Employer's Address		

City	State/Province	Zip Code/Postal Code
Country		
Supervisor's Name		

**CHST
REFERENCE FORM**



Please type or print. Make copies as needed. Return this form to the applicant. Signature of reference required.

APPLICANT

Applicant Name	_____			
	<i>First</i>	<i>MI</i>	<i>Last/Family</i>	<i>Maiden Name (if applicable)</i> <i>Other Legal Name (if applicable)</i>

The remainder of this form to be completed by the reference.

REFERENCE PERSON

Reference Name _____		
Your Position Title _____	Phone Number (A/C) (Number) _____	Certifications Currently Held <i>(Check any that apply.)</i> <input type="checkbox"/> CSP <input type="checkbox"/> CIH <input type="checkbox"/> OHST/CLCS <input type="checkbox"/> CHST
Company _____		
Address _____		
City _____	State/Province _____	Zip Code/Postal Code _____ Country _____
Signature of Reference _____		Date _____

BASIS FOR YOUR COMMENTS

Period You Have Known Applicant <i>(Give approximate dates.)</i>	FROM (Mo/Yr)	TO (Mo/Yr)	Are you a relative of this applicant? <input type="checkbox"/> No <input type="checkbox"/> Yes <i>(Please explain.)</i>
Nature of Your Relationship with Applicant: <input type="checkbox"/> Supervisor <input type="checkbox"/> Past Supervisor <input type="checkbox"/> Co-worker <input type="checkbox"/> Professor <input type="checkbox"/> Employee <input type="checkbox"/> Friend <input type="checkbox"/> Other _____		Briefly describe:	

VALIDATION OF APPLICANT'S EXPERIENCE

Applicant's Position Title	Is/was this position full-time? (30 hrs/wk or more) <input type="checkbox"/> Yes <input type="checkbox"/> No	Briefly describe the functions of this position:
INFORMATION ABOUT APPLICANT'S EXPERIENCE <i>(Please answer each applicable question.)</i>	1. To your knowledge, how many years of experience does the applicant have in the construction industry? <input type="checkbox"/> At least one <input type="checkbox"/> At least two <input type="checkbox"/> Three or more <input type="checkbox"/> I do not have the knowledge to evaluate 2. To your knowledge, does the applicant have 2 years of experience as a construction supervisor, foreman, job superintendent or as a manager of construction? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I do not have the knowledge to evaluate 3. To your knowledge, does the applicant have 2 years of experience as a safety and health practitioner in construction or some other industry? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I do not have the knowledge to evaluate 4. If the applicant has experience as a safety and health practitioner, what portion of his/her time was devoted to those job duties? <input type="checkbox"/> Full-time <input type="checkbox"/> Less than full-time, but more than 35% <input type="checkbox"/> Less than 35% <input type="checkbox"/> I do not have the knowledge to evaluate 5. <i>(For faculty references of students in safety and health degree programs.)</i> The applicant is a student in the last semester or last two quarters of a safety and health degree program and is expected to graduate. _____/_____ Expected graduation date (Mo/Yr)	
Do you have any other comments about the applicant and his/her qualifications for the CHST certification?		

NOTES

NOTES

BCSP | **Board of Certified
Safety Professionals**

Advancing the Safety, Health and Environmental
Professional Since 1969

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