



PSI Services LLC

3210 E Tropicana

Las Vegas, NV 89121

Phone: 833-333-4754

E-mail: examschedule@psionline.com

<https://test-takers.psiexams.com/hitrade>

HAWAII DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS PROFESSIONAL AND VOCATIONAL LICENSING DIVISION



CONTRACTOR EXAMINATIONS CANDIDATE INFORMATION BULLETIN

EXAMINATIONS BY PSI SERVICES LLC

This Candidate Information Bulletin provides you with information about the examination and application process for becoming licensed. To be licensed, you must pass an examination to confirm that you have attained at least a minimum level of knowledge regarding the principles, practices, statutes, and regulations. The Hawaii Department of Commerce and Consumer Affairs has contracted with PSI to conduct its examination program.

EXAMINATION PAYMENT AND SCHEDULING PROCEDURES

You are not allowed to register for your exam until the Board approves your application and sends you a letter of approval. The Board's application forms can be found online at www.cca.hawaii.gov/pvl. Your eligibility is valid for 6 months. You can test unlimited during the 6 month period.

The first and last names printed on your identification must match exactly the first and last names used when applying for licensure. If the names with which you have registered are different from the names on your application for licensure, you must bring legal name change documentation with you to the test center on the day of your test. The only acceptable forms of legal documentation are: a marriage license, divorce decree and/or a court action legal name change document. All documents must contain the name change in Roman characters and must be the original documents. Candidates wishing to make a name change, address change or email address change must contact their regulatory body. This cannot be done when scheduling your examination or at the test center.

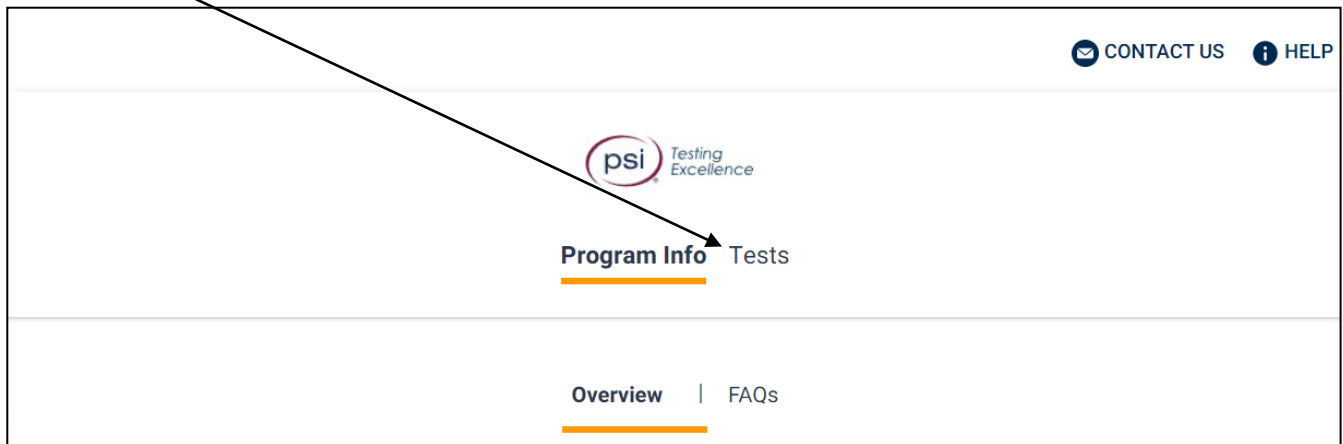
Examination Fee for A-General Engineering	\$85
Examination Fee for B-General Building Contractor	\$85
Examination Fee for all others	\$80

NOTE: EXAMINATION FEES ARE NOT REFUNDABLE OR TRANSFERABLE. THE EXAMINATION FEE IS VALID FOR ONE YEAR FROM THE DATE OF PAYMENT.

ON-LINE ([HTTPS://TEST-TAKERS.PSIEXAMS.COM/HITRADE](https://test-takers.psiexams.com/hitrade))

For the fastest and most convenient examination scheduling process, PSI recommends that you register for your examinations using the Internet. You register online by accessing PSI's registration website at <https://test-takers.psiexams.com/hitrade>. Internet registration is available 24 hours a day.

1. You will receive an eligibility email from PSI. Select the link imbedded in the email.
2. Select **TESTS** to create an account.



3. Select the examination and you are ready to create an account. Select **LOGIN/REGISTER**.

To continue the booking process and schedule your test, you must login or create an account.

LOGIN/REGISTER

4. You will be prompted to **CREATE AN ACCOUNT** with PSI.
The first and last name must match exactly with your current, valid, government-issued ID.

ID *	
First Name *	Last Name *
Middle Name	Generation
Email *	
Password *	Your password must contain: <ul style="list-style-type: none">• At least one capital letter A-Z• At least one lower case letter a-z• At least one number 0-9• At least one special character !@#V\$%^&V*• At least 8 and up to 32 characters
Confirm Password *	

5. Select your test format: (Test Center) or (Remote Proctored).

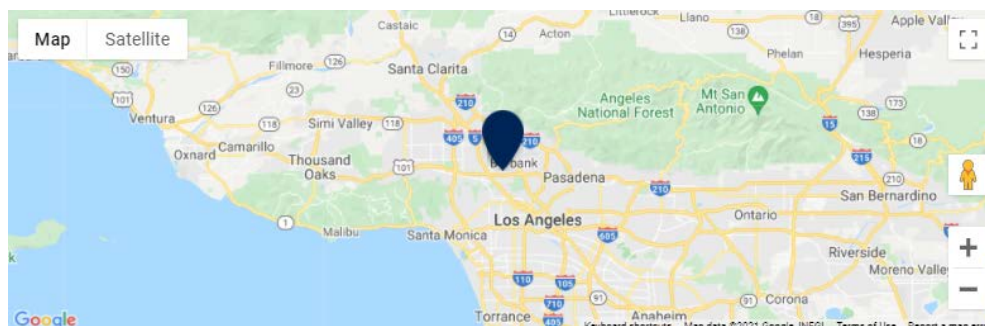
Modality	
 Site Proctored SELECTED	 Atlas Remote Proctored SELECT

Scheduling at a Test Center

1. Enter the "City or Postal Code" and select **FIND**.

Search Test Center Location

Radius



2. Select a date and time to book an appointment.

Choose a Date and Time

<

October 2021

>

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

☐ Available ☒ Selected

**Time slots available for
October 08, 2021**

08:00 AM

01:30 PM

3. You are now ready to pay.

Payment

Billing Address

Address 1 *

Address 2

Address 3

City *

Order Summary

Commercial Contractor Practice Test
Mechanical Bus and Law \$100.00 USD

Total Price

CONTINUE

4. Once payment has been made you will receive a message confirming the test center, booked date, and booked time.

Booking Confirmed!! [Print Confirmation](#)

Email Address:
asingla81@psionline.com

Home Phone:
111224444

Office Phone:
2221112345

Scheduling via Remote Proctor

1. Select a date and time to book an appointment.

Choose a Date and Time

< **October 2021** >

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

☐ Available ☒ Selected

Time slots available for October 08, 2021

08:00 AM

01:30 PM

2. You are now ready to pay.

Payment

Billing Address

Address 1 *

Address 2

Address 3

City *

Order Summary

Commercial Contractor Practice Test

Mechanical Bus and Law \$100.00 USD

Total Price

CONTINUE

3. Once payment has been made you will receive a message confirming the booked date and booked time. Please review the booking before selecting **CONFIRM**.

Review Booking:

Email Address: asingla81@psionline.com Home Phone: 111224444 Office Phone: 2221112345

Wednesday, October 06, 2021

5:30 PM Pacific Time

Before taking your remote online proctored exam, please check system compatibility - click [HERE](#)

☒ By continuing, you agree to The Company's [Conditions of Use And Privacy Notice](#).

CONFIRM

4. Your booking will now display in your account. You will be able to **LAUNCH** your test within 30 minutes of your booked test time.

IMPORTANT: BE SURE TO CHECK THE COMPATIBILITY OF YOUR COMPUTER to include Audio/Video Check, Webcam Check and System Check. Prior to testing, **CLICK HERE**.

Bookings: ?

1 DAYS 0 HOURS 22 MINUTES until test

Wednesday, October 06, 2021 Add to Calendar

5:30 PM Pacific Time

[Print Receipt](#)

[More Information](#)

Before taking your remote online proctored exam, please check system compatibility - click [HERE](#)

Online Proctored (Live). Click the Launch button at your scheduled test time. **LAUNCH**

By not starting your test within 15 minutes after your booked time, you forfeit your test fee or test eligibility. Fees and test eligibilities are non-refundable. If you have any questions regarding your compatibility check, or if you experience issues launching your test, you may contact PSI's technical support team at (866) 395-0907.

TELEPHONE (833-333-4754)

For telephone registration, you will need a valid credit card (VISA, MasterCard, American Express or Discover). PSI registrars are available Monday through Friday between 1:30 am and 4:00 pm and, Saturday-Sunday, between 3:00 am and 12:00n, HST.

RESCHEDULING/CANCELING AN EXAMINATION APPOINTMENT

You may cancel and reschedule an examination appointment without forfeiting your fee if your *cancellation notice is received two (2) days before the scheduled examination date*. For example, for a Monday appointment, the cancellation notice would need to be received on the previous Saturday. You may call PSI at 833-333-4754.

Note: A voicemail or email message is not an acceptable form of cancellation. Please use the PSI website or call PSI to speak directly to a Customer Service Representative.

RETAKING A FAILED EXAMINATION

It is not possible to make a new examination appointment on the same day you have taken an examination due to processing and reporting results. Depending upon space availability, unsuccessful candidates may be able to retest within two business days. You may access a registration form at <https://test-takers.psiexams.com/hitrade>. You may also call PSI at 833-333-4754.

MISSED APPOINTMENT OR LATE CANCELLATION

If you miss your appointment, you will not be able to take the examination as scheduled. You will also forfeit your examination fee, if you:

- Do not cancel your appointment two (2) days before the scheduled examination date;
- Do not appear for your examination appointment;
- Are not checked in by your scheduled start time;
- Do not present proper identification when you arrive for the examination.

EXAM ACCOMMODATIONS (ADA)

All PSI examination centers are equipped to provide access in accordance with the Americans with Disabilities Act (ADA) of 1990, and exam accommodations will be made in meeting a candidate's needs. A candidate with a disability or a candidate who would otherwise have difficulty taking the examination should request alternative arrangements by [Clicking Here](#).

Candidates granted accommodation in accordance with the ADA, MUST schedule their examination by telephone and speak directly with a PSI registrar.

EXAMINATION SITE CLOSING FOR AN EMERGENCY

In the event that severe weather or another emergency forces the closure of an examination site on a scheduled examination date, your examination will be rescheduled. PSI personnel will attempt to contact you in this situation. However, you may check the status of your scheduled examination by calling 833-333-4754. Every effort will be made to reschedule your examination at a convenient time as soon as possible. You may also check our website at <https://test-takers.psiexams.com/hitrade>.

EXAMINATION SITE LOCATIONS

HAWAII (HAWAII ISLAND - HONOKAA)

NORTH HAWAII EDUCATION RESEARCH CENTER (NHERC)
45-539 PLUMERIA STREET
HONOKAA, HI 96727

OAHU (HONOLULU)

ALA MOANA PACIFIC CENTER
1585 KAPIOLANI BLVD, SUITE 1135
HONOLULU, HI 96814

MAUI (KAHULUI)

UNIVERSITY OF HAWAII MAUI COLLEGE
310 W. KA'AHUMANU AVENUE
THE LEARNING CENTER
KAHULUI, HI 96732

KAUAI (LIHUE)
MARRIOTT KAUAI RESORT PSI
3610 RICE ST
TESTING IS LOCATED IN THE NAWILIWILI ROOM OF PUNA.
LIHUE, HI 96766

KAPAA
SHERATON KAUAI COCONUT BEACH RESORT
1010 CORPORATE DRIVE
KAPAA, HAWAII 96746

KAILUA KONA
BK CONSULTANT LLC
75-5737 KUAKINI HWY.
KAILUA KONA, HI 96740

REPORTING TO THE EXAMINATION SITE

On the day of the examination, you should arrive at least 30 minutes before your appointment. This extra time is for sign-in, identification, and familiarizing you with the examination process. *If you arrive late, you may not be admitted to the examination site and you will forfeit your examination registration fee.*

REQUIRED IDENTIFICATION AT EXAMINATION SITE

Candidates need to provide one (1) form of identification.

Candidates must register for the exam with their LEGAL first and last name as it appears on their government issued identification. The required identification below must match the first and last name under which the candidate is registered. Candidates are required to bring one (1) form of a valid (non-expired) signature bearing identification to the test site.

REQUIRED IDENTIFICATION (with photo) - Choose One

- Government-issued Driver's License
- U.S. Dept. of State Driver's License
- U.S. Learner's Permit (plastic card only with photo and signature)
- National/State/Country Identification Card
- Passport
- Passport card
- Military ID (will not be accepted for remote testing)
- Military ID for spouses and dependents (will not be accepted for remote testing)
- Alien Registration Card (Green Card, Permanent Resident Visa)

SECURITY PROCEDURES

The following security procedures apply during examinations:

- You will have access to an online calculator. If you bring your own calculator, only nonprogrammable calculators that are silent, battery-operated, do not have paper tape printing capabilities, and do not have a keyboard containing the alphabet will be permitted.
- You will be provided a piece of scratch paper and a pencil. These must be returned to the proctor at the end of the examination.
- All personal belongings of candidates should be placed in the secure storage provided at each site prior to entering the examination room. Personal belongings include, but are not limited to, the following items:
 - Electronic devices of any type, including cellular / mobile phones, recording devices, electronic watches, cameras, pagers, laptop computers, tablet computers (e.g., iPads), music players (e.g., iPods), smart watches, radios, or electronic games.
 - Bulky or loose clothing or coats that could be used to conceal recording devices or notes. For security purposes outerwear is not permitted in the testing room. Examples of outerwear include open sweaters, cardigans, shawls, scarves, hoodies, vests, jackets and coats. In the event you are asked to remove the outerwear, appropriate attire, such as a shirt or blouse, should be worn underneath.
 - Hats or headgear not worn for religious reasons or as religious apparel, including hats, baseball caps, or visors.
 - Other personal items, including purses, notebooks, reference or reading material, briefcases, backpacks, wallets, pens, pencils, other writing devices, food, drinks, and good luck items.
- Although secure storage for personal items is provided at the examination site for your convenience, PSI is not responsible for any damage, loss, or theft of any personal belongings or prohibited items brought to, stored at, or left behind at the examination site. PSI assumes no duty of care with respect to such items and makes no representation that the secure storage provided will be effective in protecting such items. If you leave any items at the examination site after your examination and do not claim them within 30 days, they will be disposed of or donated, at PSI's sole discretion.

- Person(s) accompanying an examination candidate may not wait in the examination center, inside the building or on the building's property. This applies to all guests, including drivers, children, friends, family, colleagues or instructors.
- No smoking, eating, or drinking is allowed in the examination center.
- During the check-in process, all candidates will be asked if they possess any prohibited items. Candidates may also be asked to empty their pockets and turn them out for the proctor to ensure they are empty. The proctor may also ask candidates to lift up the ends of their sleeves and the bottoms of their pant legs to ensure that notes or recording devices are not hidden there.
- Proctors will also carefully inspect eyeglass frames, tie tacks, or any other apparel that could be used to harbor a recording device. Proctors will ask to inspect any such items in candidates' pockets.
- If prohibited items are found during check-in, candidates shall put them in the provided secure storage or return these items to their vehicle. PSI will not be responsible for the security of any personal belongings or prohibited items.
- Any candidate possessing prohibited items in the examination room shall immediately have his or her test results invalidated, and PSI shall notify the Board of the occurrence.
- Any candidate seen giving or receiving assistance on an examination, found with unauthorized materials, or who violates any security regulations will be asked to surrender all examination materials and to leave the examination center. All such instances will be reported to the Board.
- Once candidates have been seated and the examination begins, they may leave the examination room only to use the restroom, and only after obtaining permission from the proctor. Candidate will not receive extra time to complete the examination.

TAKING THE EXAMINATION BY COMPUTER

The examination will be administered via computer. You will be using a mouse and computer keyboard.

TUTORIAL

Before you start your examination, an introductory tutorial to the computer and keyboard is provided on the computer screen. The time you spend on this tutorial, up to 15 minutes, DOES NOT count as part of your examination time. Sample questions are included following the tutorial so that you may practice using the keys, answering questions, and reviewing your answers.

TEST QUESTION SCREEN

One question appears on the screen at a time. During the examination, minutes remaining will be displayed at the top of the screen and updated as you record your answers.

IMPORTANT: After you have entered your responses, you will later be able to return to any question(s) and change your response, provided the examination time has not run out.

EXAMINATION REVIEW

PSI, in cooperation with the Department, will be consistently evaluating the examinations being administered to ensure that the examinations accurately measure competency in the required knowledge areas. While taking the examination, examinees will have the opportunity to provide comments on any questions, by using the comments key on the keyboard. These comments will be analyzed by PSI examination development staff. PSI does not respond to individuals regarding these comments, and all substantive comments are reviewed. **This is the only review of examination materials available to candidates.**

SCORE REPORTING

Your score will be displayed on screen at the end of the examination and a score report will be emailed to you. If you fail, the emailed score report will include the diagnostic report indicating your strengths and weaknesses by examination type.

You may request a duplicate score report after your examination by emailing scorereport@psionline.com.

DESCRIPTION OF EXAMINATIONS

IMPORTANT All new applicants that are approved to take the examination are required to take the Business and Law examination. If the candidate is already licensed, applied for and is approved for an additional classification, they do not have to retake the Business and Law examination (they are only required to take the additional classification exam that they are approved for).

In addition to the number of questions per examination, a small number of up to ten "experimental" questions may be administered to candidates during the examinations. These questions will not be scored, and the time taken to answer them will not count against examination time. The administration of such non-scored experimental questions is an essential step in developing future licensing examinations.

BUSINESS AND LAW

Tests a candidate's knowledge of payroll taxes, Workers' Compensation, Unemployment Compensation, lien laws, and other laws and subjects that will affect their daily operations as contractors.

# of Questions	Minimum Passing Score	Time Allowed
80	75%	180 Minutes

Content Area	# Items Test
Business Organization	3
Contract Management	12
Estimating and Bidding	10
Financial Management	7
Labor Law	5
Licensing	7
Lien Law	5
Project Management	9
Risk Management	8
Safety - OSHA	6
Tax Laws	5
Public Works Law	3

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

NASCLA Contractors Guide to Business, Law and Project Management Hawaii edition 1st edition 2022

*Hawaii Revised Statutes chapter 103 Expenditure of Public Money and Public Contracts;
https://www.capitol.hawaii.gov/hrscurrent/vol02_ch0046-0115/hrs0103/HRS_0103-.htm

*Hawaii Revised Statutes chapter 104 Wages and Hours of Employees on Public Works; and
https://www.capitol.hawaii.gov/hrscurrent/Vol02_Ch0046-0115/HRS0104/HRS_0104-.htm

*Hawaii Administrative Rules Title 12, Chapter 22 Wage Determinations - <https://labor.hawaii.gov/wp-content/uploads/2013/02/12-22.pdf>

*<https://casetext.com/regulation/hawaii-administrative-rules/title-3-department-of-accounting-and-general-services/public-works-division/chapter-56-public-works-construction/subchapter-1-rules-providing-value-engineering-incentives-in-public-works-contracts>

*These references are not in the NASCLA Manual

A - GENERAL ENGINEERING CONTRACTOR

The exam covers the broad range of activities performed by a General Engineering Contractor as defined in Title 16, Chapter 77 of the "Hawaii Administrative Rules." Examination questions are based on research of the accepted business and trade practices as determined by surveying current professionals in the field of General Engineering.

# of Questions	Minimum Passing Score	Time Allowed
100	75%	240 Minutes

Content Area	# Items Test
Bridges/Miscellaneous Structures	10
Sitework including Layout and Surveying	12
Excavation including Blasting	13
Utilities	12
Heavy Equipment and Sitework	10
Canals, Reservoirs and Flood Control	10
Asphalt and Concrete Pavement	12
Estimating and Plan Reading	6
Steel Erecting and Welding	8
Safety OSHA	6
Metal Barriers, Striping, Signs, and Fences	1

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018 edition, International Code Council, 5203 Leesburg Pike, Suite 600 Falls Church, VA 22041, 7039314533, www.intlcode.org/

Hawaii Standard Specifications for Road and Bridge Construction, 2005, Hawaii Department of Transportation, Highways Division, 869 Punchbowl Street, Room 201, Honolulu, HI 96813, <http://hawaii.gov/dot/highways/specifications2005/sspecprv.htm>.

Construction Handbook for Bridge Temporary Works, 1995, 1st edition, American Association of State Highway Transportation Officials, (202) 624-5800, www.bookstore.transportation.org

*Handbook of Rigging, 5th Edition, 2009, W.E. Rossnagel, McGraw-Hill, P.O. Box 182605, Columbus, OH 43218-2605, (800) 338-3987, www.McGraw-hill.com

*Manual on Uniform Traffic Control Devices for Streets and Highways, 2009, U.S. Department of Transportation - Federal Highway Administration, <https://mutcd.fhwa.dot.gov/pdfs/2009/mutcd2009edition.pdf>

*Note: Additional references (previously not on the exam outline)

Technical Digest No. 9 - Handling and Erection of Steel Joists and Joist Girders, 3rd Edition, 2008, Steel Joint Institute, 234 W. Cheves Street, Florence, SC 29501, Phone: (843) 407-4091, Fax (843) 407-4044, www.steeljoist.org

Contractor's Guide to Quality Concrete Construction, 4th Edition, 2018; American Concrete Institute, POB 9094, Farmington Hills, MI 48333 248/848-3700, www.aci-int.org

DIPRA Installation Guide for Ductile Iron Pipe, 2015, Ductile Iron Pipe Research Association, www.dipra.org

Design and Construction of Urban Storm Water Management Systems, 2018 American Society of Civil Engineers, www.asce.org

Modern Welding, 11th Edition, 2013, Althouse, Turnquist, Bowditch, Bowditch, The Goodheart-Willcox Company, Inc., 18604 West Creek Dr., Tinley Park, IL 60477-6243, 1-800-323- 0440, www.goodheartwillcox.com

Pipe and Excavation Contracting, Dave Roberts, 1987 or 2011, Craftsman Book Company, (800) 829-8123, www.craftsmanbook.com

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

B - GENERAL BUILDING CONTRACTOR

The exam covers the broad range of activities performed by a General Building Contractor as defined in Title 16, Chapter 77 of the Hawaii Administrative Rules. Examination questions are based on research of accepted business and trade practices as determined by surveyed current professionals in the field of General Building.

# of Questions	Minimum Passing Score	Time Allowed
80	75%	240 Minutes

Content Area	# Items Test
Plan Reading and Estimating	8
Sitework and Foundations	8
Concrete*	16
Carpentry	14
Associated Trades (including interior and exterior finishes, and windows & doors)	16
Roofing**	6
Safety OSHA	6
Thermal and Moisture Protection	6

* Only includes C-31a Cement concrete

** Only includes C-42a Aluminum and other metal shingles and C-42b Wood shingles and wood shakes

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

Modern Masonry - Brick, Block, Stone, Clois E. Kicklighter, 9th edition (2020). The Goodheart-Willcox Company, (800) 323- 0440, www.g-w.com

Carpentry and Building Construction, 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com

Contractor's Guide to Quality Concrete Construction, 4th Edition, 2018; American Concrete Institute, POB 9094, Farmington Hills, MI 48333 248/848-3700, www.aci-int.org

*Technical Digest No. 9 - Handling and Erection of Steel Joists and Joist Girders, 3rd Edition, 2008, Steel Joist Institute, 234 W. Cheves Street, Florence, SC 29501, Phone: (843) 407-4091, Fax (843) 407-4044, www.steeljoist.org

***Note: Reference was previously on exam outline**

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-1 ACOUSTICAL AND INSULATION CONTRACTOR

To install interior or exterior acoustic tile systems, spray systems, and insulation in buildings and structures for the purpose of sound control. These systems or materials may be installed independently of or in conjunction with acoustic tile and/or drywall systems as multipurpose (acoustic, insulation, fire retardant) systems.

# of Questions	Minimum Passing Score	Time Allowed
25	75%	60 Minutes

Content Area	# Items Test
General Knowledge	4
Spray-On Application	3
Batt / Roll Insulation	5
Blown or Loose- Fill Insulation	5
Rigid-Board and Reflective Insulation	3
Vapor Retarders	2
Safety OSHA	3

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Carpentry and Building Construction, 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com

Insulation Handbook, 2001, Richard T. Bynum, Jr., McGraw-Hill, PO Box 543, Blacklick, OH 43004, (800) 334-7344, <https://www.mhprofessional.com/>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-2 MECHANICAL INSULATION CONTRACTOR

To install insulation materials on mechanical systems for the purpose of temperature control.

# of Questions	Minimum Passing Score	Time Allowed
40	75%	60 Minutes

Content Area	# Items Test
Duct Insulation	15
Hot, Chilled, and Steam Pipe Insulation	11
General Insulation Requirements	9
OSHA Safety	5

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Mechanical Code, 2018, International Code Council, 800-786-4452, <https://codes.iccsafe.org/>

National Commercial and Industrial Insulation Standards, 9th edition, Midwest Insulation Contractors Association, https://www.micainsulation.org/aws/DBX/pt/sd/product/27846/_PARENT/layout_details/false

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088.
www.psionlinestore.com

C-3 ASPHALT PAVING CONTRACTOR

To proportion, mix, and place base materials; and to place paving and surfacing consisting of graded mineral aggregates bonded with asphalt or bituminous materials so that a firm, smooth surface suitable for roadways, runways, driveways, parking areas, and play areas is obtained, including the application of seal coating and parking lot or highway striping.

# of Questions	Minimum Passing Score	Time Allowed
40	75%	120 Minutes

Content Area	# Items Test
Asphalt	8
Paving and Sealcoating	8
Sitework including Layout and Surveying	8
Heavy Equipment and Sitework	6
Estimating and Plan Reading	6
Safety OSHA	4

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018 edition, International Code Council, 5203 Leesburg Pike, Suite 600 Falls Church, VA 22041, 7039314533, www.intlcode.org/

Construction Planning, Equipment, and Methods, Robert L. Peurifoy, 9th edition, 2018,
<https://www.amazon.com/Construction-Planning-Equipment-Methods-Peurifoy/dp/0073401129>

Hot-Mix Asphalt Paving Handbook, 2000, Carl L. Monismith, Rita B. Leahy, John A. Epps, American Association of State Highway Transportation Officials,
https://www.amazon.com/s?k=%EF%82%A7+Hot+Mix+Asphalt+Paving+Handbook&i=stripbooks&ref=nb_sb_noss

Manual on Uniform Traffic Control Devices for Streets and Highways, 2009, U.S. Department of Transportation - Federal Highway Administration, <https://mutcd.fhwa.dot.gov/pdfs/2009/mutcd2009edition.pdf>

Pipe and Excavation Contracting, Dave Roberts, 2011, Craftsman Book Company, (800) 829-8123, www.craftsmanbook.com

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088.
www.psionlinestore.com

C-3A ASPHALT CONCRETE PATCHING, SEALING AND STRIPING CONTRACTOR

To patch asphalt roadways, runways, driveways and parking areas so that a suitable surface is obtained; to seal coat surfaces, to paint parking stripes, highway stripes, or playcourt lines, and to install epoxy buttons or white dome dividers on highways.

# of Questions	Minimum Passing Score	Time Allowed
24	75%	60 Minutes

Content Area	# Items Test
Asphalt	7
Paving and Sealcoating	7
Excavation, Compaction, and Grading	7
Safety OSHA	3

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Construction Planning, Equipment, and Methods, Robert L. Peurifoy, 8th edition, 2011
<https://www.amazon.com/Construction-Planning-Equipment-Methods-Peurifoy/dp/0073401129>

Hot-Mix Asphalt Paving Handbook, 2000, Carl L. Monismith, Rita B. Leahy, John A. Epps, American Association of State Highway Transportation Officials, https://www.amazon.com/s?k=%EF%82%A7+Hot+Mix+Asphalt+Paving+Handbook&i=stripbooks&ref=nb_sb_noss

Excavation and Grading Handbook, Nick Capachi, 2006, 3rd edition, <https://www.amazon.com/Excavation-Grading-Handbook-Nick-Capachi/dp/1572181737>

Manual on Uniform Traffic Control Devices for Streets and Highways, 2009, U.S. Department of Transportation - Federal Highway Administration, <https://mutcd.fhwa.dot.gov/pdfs/2009/mutcd2009edition.pdf>

Pipe and Excavation Contracting, Dave Roberts, 2011, Craftsman Book Company, (800) 829-8123, www.craftsmanbook.com

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088.
www.psionlinestore.com

C-4 BOILER, HOT-WATER HEATING, HOT WATER SUPPLY, AND STEAM FITTING CONTRACTOR

To install and repair fire-tube and water-tube power boilers, packaged boiler systems, hot-water heating and hot water supply boilers, and thermal fluid systems; including all fitting and piping, valves, gauges, pumps, radiators, convectors, fuel oil tanks, fuel oil lines, hazardous waste storage tanks, chimneys, flues, heat insulation, and all other devices, apparatus, and equipment appurtenant thereto, including the insulation of pipes in connection with the boiler installation or repair, and installation of hydromatic radiant heating systems (warm floor) provided these are connected to a boiler.

# of Questions	Minimum Passing Score	Time Allowed
60	75%	120 Minutes

Content Area	# Items Test
Steam and Hot Water Boilers	15
Fuel Oil and Gas Piping	9
Steam and Hot Water Piping	12
Insulation	6
Chimneys, Flues and Vents	5
Sizing and Estimating	8
Testing and Inspection	5

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Mechanical Code, 2018, International Code Council, (800) 786-4452, www.iccsafe.org

International Fuel Gas Code, 2018, International Code Council, (800) 786-4452, www.iccsafe.org

National Commercial and Industrial Insulation Standards, 9th edition, Midwest Insulation Contractors Association, https://www.micainsulation.org/aws/DBX/pt/sd/product/27846/_PARENT/layout_details/false

Low Pressure Boilers, Frederick M. Steingress, Daryl R. Walker, 2009, 3rd Edition, American Technical Publishers, Inc., (800) 323-3471, www.atplearning.com

C-5 CABINET, MILLWORK, AND CARPENTRY REMODELING AND REPAIRS CONTRACTOR

To install cabinets, cases, sashes, doors, trims, or nonbearing partitions that become a permanent part of structure, and to remodel or to make repairs to existing buildings or structures, or both; and to do any other work which would be incidental and supplemental to the remodeling or repairing. The repairs, carpentry work, or remodeling shall include the installation of window shutters, garage doors, bifold, and shutter doors; and the installation of manufactured sidings and any other work that would not involve changes or additions to the building's or structure's basic components such as, but not limited to, foundations, beams, rafters, joists, or any load bearing members or sections.

# of Questions	Minimum Passing Score	Time Allowed
40	75%	120 Minutes

Content Area	# Items Test
Plan Reading and Estimating	4
Rough Carpentry including Stairs	8
Cabinetry and Millwork	12
Associated Trades Including Siding, Drywall and Windows and Doors	12
Safety OSHA	4

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

Carpentry and Building Construction, 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com

Finish Carpenter's Manual, Jim Tolpin, 1993, Craftsman Book Company, (800) 829-8123, www.craftsmanbook.com

Gypsum Construction Handbook, 7th edition, 2014, United States Gypsum Company (USG), RS Means Publishing, 700 Longwater Drive, Norwell, MA 02061, 800-334-3509, Fax: 800-632-6732, <http://www.wiley.com/buy/9781118749845>.

The Complete Illustrated Guide to Furniture and Cabinet Construction, 2001, Andy Rae, 1-56158-402-9, The Taunton Press, 63 South Main St., P.O. Box 5506, Newtown, CT 06470-5506

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-5B SIDING APPLICATION CONTRACTOR

To prepare surfaces and install aluminum, vinyl or other manufactured siding, with the exception of wood, so that a watertight surface is obtained.

# of Questions	Minimum Passing Score	Time Allowed
25	75%	120 Minutes

Content Area	# Items Test
Vinyl Siding	8
Aluminum Siding	3
Surface Preparation	5
Tools, Equipment and Accessories	4
Estimating and Plan Reading	3
Safety OSHA	2

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018 edition, International Code Council, 5203 Leesburg Pike, Suite 600 Falls Church, VA 22041, 7039314533, www.intlcode.org/

Carpentry and Building Construction, 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com

Standard Practice for Installation of Rigid Poly(Vinyl Chloride) (PVC) Siding and Soffit - ASTM D 4756 - 06, American Society for Testing and Materials, <https://webstore.ansi.org/standards/astm/astmd475606>

Aluminum Siding Application Manual, The Aluminum Association, <https://inspectapedia.com/exterior/Gentek-Metal-Siding-Installation-Manual.pdf>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-6 CARPENTRY FRAMING CONTRACTOR

To do wood and metal framing, siding, wood truss, roof sheathing, and other work as is by custom and usage accepted in the construction industry as carpentry framing.

# of Questions	Minimum Passing Score	Time Allowed
60	75%	120 Minutes

Content Area	# Items Test
Walls	15
Floors Ceilings and Stairs	8
Roofs	8
Estimating and Plans	8
Layout	7
Metal Framing	8
Safety OSHA	6

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

Carpentry and Building Construction, 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com

Gypsum Construction Handbook, 7th edition, 2014, United States Gypsum Company (USG), RS Means Publishing, 700 Longwater Drive, Norwell, MA 02061, 800-334-3509, Fax: 800-632-6732,
<https://www.usg.com/content/usgcom/en/resource-center/gypsum-construction-handbook.html>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088.
www.pSIONlinestore.com

C-7 CARPET LAYING CONTRACTOR

To apply or install acceptable fabric floor coverings, artificial turf, or other prefabricated materials to surfaces.

# of Questions	Minimum Passing Score	Time Allowed
30	75%	60 Minutes

Content Area	# Items Test
Sheet Carpet	10
General Knowledge	8
Surface Preparation	6
Carpet Cushion	2
Carpet Accessories	2
Adhesive	2

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Standard for Installation of Residential Carpet, CRI 105-2015, The Carpet and Rug Institute, <https://carpet-rug.org/resources/installation-standards/>

Standard for Installation of Commercial Carpet, CRI 104-2015, The Carpet and Rug Institute, <https://carpet-rug.org/resources/installation-standards/>

Stanley Complete Flooring, Meredith Books, Des Moines IA; Available on Amazon, <https://www.amazon.com/Complete-Flooring-Stanley/dp/B002SB8P7Y>

C-9 CESSPOOL CONTRACTOR

To excavate and install cesspools and septic tanks in compliance with the requirements of the department of health.

# of Questions	Minimum Passing Score	Time Allowed
25	75%	60 Minutes

Content Area	# Items Test
Cesspools	6
Septic Tanks	6
Drainage Fields	8
Excavation and Compaction	5

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Uniform Plumbing Code, 2018, International Association of Plumbing and Mechanical Officials (IAPMO), 5001 E. Philadelphia St., Ontario, CA 91761, www.iapmo.org.

Onsite Wastewater Treatment Survey and Assessment, State of Hawaii Department of Business, Economic Development and Tourism Office of Planning, Hawaii Coastal Zone Management Program, Department of Health
<https://health.hawaii.gov/wastewater/files/2013/06/onsitesurvey.pdf>

Hawaii Administrative Rules Title 11 Department of Health, Subtitle 1, Chapter 62 Wastewater Systems, Subchapters 1, 3, 5, and 8, App D - Tables, App F
<https://casetext.com/regulation/hawaii-administrative-rules/title-11-department-of-health/subtitle-1-general-departmental-provisions/chapter-62-wastewater-systems>

Pipe and Excavation Contracting, Dave Roberts, 1987 or 2011, Craftsman Book Company, (800) 829-8123, www.craftsmanbook.com

International Plumbing Code, 2018 edition, International Code Council, 5203 Leesburg Pike, Suite 600 Falls Church, VA 22041, 7039314533, www.intlcode.org/

C-12 DRYWALL CONTRACTOR

To layout and install nonstructural metal studs, channel and joist framing systems, and all types of gypsum wallboard systems, including the taping and texturing operations incidental thereto. Also included is the application of spray on barriers which would be incidental to the installation of wallboard.

# of Questions	Minimum Passing Score	Time Allowed
25	75%	60 Minutes

Content Area	# Items Test
Installation	10
Taping and Finishing	4
Materials	4
Metal Framing	3
Estimating and Plan Reading	2
Special Applications and Accessories	2

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

Carpentry and Building Construction, 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com

Gypsum Construction Handbook, 7th edition, 2014, United States Gypsum Company (USG), RS Means Publishing, 700 Longwater Drive, Norwell, MA 02061, 800-334-3509, Fax: 800-632-6732,
<https://www.usg.com/content/usgcom/en/resource-center/gypsum-construction-handbook.html>

C-13 ELECTRICAL CONTRACTOR

To place, install, erect, or connect any electrical wires, fixtures, appliances, apparatus, electrical signs, conduits, poles, raceways, and to do trenching, backfilling, patching, and surface restoration in connection with the installation of conduits and lines which transmit, transform, or utilize electrical energy less than 600 volts phase to phase. This classification also includes the work of the C-15 electronic systems contractor and C-60 solar power systems contractor.

# of Questions	Minimum Passing Score	Time Allowed
40	75%	120 Minutes

Content Area	# Items Test
General Electrical Knowledge	3
Service, Feeders, Branch Circuits, and Electrical Power	7
Grounding and Bonding	6
Conductors and Cables	3
Raceways, Conduits, and Boxes	3
Special Occupancies, Conditions, and Equipment	3
Motors	3
Low Voltage and Controls	3
Lighting	2
Safety Information	2
Overcurrent Protection	3
Photovoltaics	2

EXAMINATION REFERENCE MATERIAL

The following reference is provided in the testing center for your use during the exam. No highlighting or notes of any sort may be made in the book during the exam.

National Electrical Code, 2020 edition, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169, (800) 344-3555, www.nfpa.org.

The following reference material is **NOT** allowed in the examination center.

National Electrical Safety Code, 2017 Edition, Institute of Electrical Electronics Engineers, Inc., 800-699-9277, <http://www.techstreet.com/ieee>

NFPA 72 National Fire Alarm and Signaling Code, 2016, National Fire Protection Association, 11 Tracey Avenue, Avon, MA 02322
<http://www.nfpa.org/catalog/product.asp?pid=7210> (Reference will be used starting 5/1/24)

Ugly's Electrical References, George V. Hart, 2020, Jones and Bartlett, (800) 832-0034, www.uglys.net

Photovoltaic Systems, 3rd edition, James P. Dunlop, American Technical Publishers, Orland Park, IL 60467- 5756, www.atplearning.com

*Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or

https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

*Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088.
www.psionlinestore.com

***Note: Additional references (not on the exam outline)**

C-14 SIGN CONTRACTOR

To fabricate or install electrical or nonelectrical signs and sign devices for the purpose of display, advertising, or directions; and to install all sign supports and sign accessories.

# of Questions	Minimum Passing Score	Time Allowed
40	75%	120 Minutes

Content Area	# Items Test
Signs and Materials	10
Sign Installation and Erecting	6
Electrical	6
Sizing and Estimating	5
Fabrication and Layout	5
Sign Bases, Anchoring, and Fastening	4
Safety OSHA	4

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Neon Techniques, Wayne Strattman, 2003, 4th edition, ST Publications, Inc., (800) 925-1110, www.stpubs.com

American Electricians' Handbook, Croft, Hartwell, and Summers, 17th Edition, 2021, McGraw-Hill, (800) 262- 4729, <https://www.amazon.com/American-Electricians-Handbook-Frederic-Hartwell/dp/1260457915>

NFPA 70 - National Electrical Code, 2020 Editions, National Fire Protection Association, (800) 344-3555, www.nfpa.org

Engineering Sign Structures: An Introduction to Analysis and Design, Benjamin Jones, 1998 or 2006, ST Media Group International, https://www.amazon.com/Engineering-Sign-Structures-Introduction-Analysis/dp/0944094309/ref=sr_1_1?crid=G0B8D7YWKAO9&keywords=engineering+sign+structures&qid=1673468221&s=books&sprefix=engineering+sign%2Cstripbooks%2C159&sr=1-1

Uniform Sign Code, 1997, International Code Council, <http://shop.iccsafe.org/1997-uniform-sign-codedownload-3.htm>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-15 ELECTRONIC SYSTEMS CONTRACTOR

To install electronic equipment and electronic controls, including but not limited to, public address, intercommunication, master antenna, and music distribution systems, CATV systems, master and program clock systems, electronic teaching devices, and other systems including electric door opening devices, and fire and burglar alarm systems; provided that this shall not include the installation of any conduits thereto.

# of Questions	Minimum Passing Score	Time Allowed
28	75%	60 Minutes

Content outline effective thru 4/30/24

Content Area	# Items Test
General Electrical Knowledge	5
Installation Requirements including Power Supplies, Grounding and Bonding, Raceways and Boxes	6
Fire Alarm Signaling Circuits	4
Burglar Alarm Systems	4
Access Control Systems	4
Conductors and Cables	5

Content outline effective 5/1/24

Content Area	# Items Test
General Electrical Knowledge	4
Installation Requirements including Power Supplies, Grounding and Bonding, Raceways and Boxes	5
Fire Alarm Signaling Circuits	4
Burglar Alarm Systems	4
Access Control Systems	4
Conductors and Cables	4
Safety Information	3

EXAMINATION REFERENCE MATERIAL

This examination is OPEN BOOK. The following reference material is provided in the testing center for your use during the exam. No highlighting or notes of any sort may be made in the book during the exam.

National Electrical Code or The National Electrical Code Handbook, 2020 edition, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169, (800) 344-3555, www.nfpa.org.

NFPA 72 National Fire Alarm and Signaling Code, 2016, National Fire Protection Association, 11 Tracey Avenue, Avon, MA 02322
<http://www.nfpa.org/catalog/product.asp?pid=7210>

The following reference material is NOT allowed in the examination center.

NTC Blue Book - Low Voltage Systems Handbook, 2020, National Training Center, <http://www.nationaltrainingcenter.net/index.xml>

NTC Yellow Book: Video Security Systems Handbook, 2022, National Training Center <http://www.nationaltrainingcenter.net/index.xml>

The International Code Council/American National Standards Institute standard (ICC/ANSI) A117.1-2003, entitled "Accessible and Usable Buildings and Facilities, http://www.nj.gov/dca/divisions/dhcr/rec/pdf/barrierfree_effective.pdf

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or

https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088.
www.psionlinestore.com (Reference will be used starting 5/1/24)

C-15A FIRE AND BURGLAR ALARM CONTRACTOR

To install, maintain, and repair central fire and burglar alarm systems; provided that this shall not include the installation of any conduits thereto.

# of Questions	Minimum Passing Score	Time Allowed
28	75%	60 Minutes

Content Area	# Items Test
General Electrical Knowledge	5
Installation Requirements including Power Supplies, Grounding and Bonding, Raceways and Boxes	6
Fire Alarm Signaling Circuits	6
Burglar Alarm Systems	6
Conductors and Cables	5

EXAMINATION REFERENCE MATERIAL

This examination is OPEN BOOK. The following reference material is provided in the testing center for your use during the exam. No highlighting or notes of any sort may be made in the book during the exam.

National Electrical Code, 2020 edition, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169, (800) 344-3555, www.nfpa.org.

NFPA 72 National Fire Alarm and Signaling Code, 2016, National Fire Protection Association, 11 Tracey Avenue, Avon, MA 02322 <http://www.nfpa.org/catalog/product.asp?pid=7210>

The following reference material is NOT allowed in the examination center.

NTC Blue Book - Low Voltage Systems Handbook, 2020, National Training Center, <http://www.nationaltrainingcenter.net/index.xml>

The International Code Council/American National Standards Institute standard (ICC/ANSI) A117.1-2003, entitled "Accessible and Usable Buildings and Facilities, http://www.nj.gov/dca/divisions/dhcr/rec/pdf/barrierfree_effective.pdf

C-15B TELECOMMUNICATIONS CONTRACTOR

To install, maintain, and repair telephone, computer, and data systems; including the associated cabling, wiring, or fiber optics, provided that this shall not include the installation of any conduits thereto.

# of Questions	Minimum Passing Score	Time Allowed
50	75%	120 Minutes

Content Area	# Items Test
Sound and Communications	16
Services, Feeders, Branch Circuits and Overcurrent Protection	8
Conductors, Raceways and Enclosures	8
General Knowledge and Calculations	8
Grounding and Bonding	4
Power Supplies	3
OSHA Safety	3

EXAMINATION REFERENCE MATERIAL

This examination is OPEN BOOK. The following reference material is provided in the testing center for your use during the exam. No highlighting or notes of any sort may be made in the book during the exam.

NFPA 70 National Electrical Code, 2020 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org

The following reference material is NOT allowed in the examination center.

Telecommunications Wiring - 3rd edition, 2001, Clyde Herrick, 0-13-028696-6, Prentice-Hall PTR, Upper Saddle River, New Jersey 07458, www.phprt.com

Live Sound Reinforcement: A Comprehensive Guide to P.A. and Music Reinforcement Systems and Technology, -OR- Live Sound Reinforcement, Bestseller Edition, Scott Hunter Stark, www.amazon.com

The Lineman's and Cableman's Handbook, Thirteenth Edition, 2017, McGraw-Hill Publishing, Inc., 860 Taylor Station Road, Blacklick, OH 43004, www.mhprofessional.com

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-16 ELEVATOR CONTRACTOR

To assemble and install and maintain sheave beams, motors, sheaves, cable and wire rope, guides, cab, counterweight, door assemblies, hydraulic systems, automatic and manual control systems, signal systems, and all other devices, apparatus, and equipment for the safe and efficient installation and operation of electrical, hydraulic, and manually operated elevators, dumb waiters, moving walks or ramps, conveyor systems, stage lifts, escalators, and man lifts excluding any lift or conveyor used in constructing a building or structure. To make or oversee alterations within the cab of the elevator which require a permit from the department of labor and industrial relations.

# of Questions	Minimum Passing Score	Time Allowed
80	75%	150 Minutes

Content Area	# Items Test
Suspension and Installation Requirements	8
Accessibility	8
Clearance, Space and Load Limits	8
Controls	8
Electricity and Grounding	8
Hydraulic Systems	8
Escalators, Moving Walks, and Conveyors	8
Testing, Inspections, Repairs and Renovations	8
Sizing and Estimating	8
Drives	8

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

National Electrical Code, NFPA 70, 2020, National Fire Protection Association, 1 Batterymarch, Quincy, MA 02269-9101, (617) 770-3000, <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=70>

ASME A17.1 - Safety Code for Elevators and Escalators, 2016, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10065, (800) 843-2763

Print Copy: [https://www.asme.org/codes-standards/find-codes-standards/a17-1-csa-b44-safety-code-elevators-escalators-\(1\)/2016](https://www.asme.org/codes-standards/find-codes-standards/a17-1-csa-b44-safety-code-elevators-escalators-(1)/2016)

ASME A17.3: Safety Code for Existing Elevators and Escalators, 2020, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10065, (800) 843-2763,

Print Copy: <https://www.asme.org/codes-standards/find-codes-standards/a17-3-safety-code-existing-elevators-escalators/2020>

ASME A17.5: Elevator and Escalator Electrical Equipment, 2014, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10065, (800) 843-2763, www.asme.org

ANSI A117.1: Accessible and Usable Buildings and Facilities, 2017, American National Standards Institute, 1819 L Street NW Washington, DC 20036, (212) 642-4980, www.ansi.org

ANSI/ASSE A10.4: Personnel Hoists and Employee Elevators on Construction and Demolition, 2007, American National Standards Institute, 1819 L Street NW Washington, DC 20036, (212) 642-4980, www.ansi.org

ASME A17.6: Standard for Elevator Suspension, Compensation, and Governor Systems, 2010, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10065, (800) 843-2763, www.asme.org

ASME A17.7: Performance-Based Safety Code for Elevators and Escalators, 2007, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10065, (800) 843-2763, www.asme.org

ASME A18.1 - Safety Standard for Platform Lifts and Stairway Chairlifts, 2020, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10065, (800) 843-2763,

Print Copy: <https://www.asme.org/codes-standards/find-codes-standards/a18-1-safety-standard-platform-lifts-stairway-chairlifts/2020/print-book>

C-16A CONVEYOR SYSTEMS CONTRACTOR

To install belt line conveyor systems including installation of baggage carousels.

# of Questions	Minimum Passing Score	Time Allowed
30	75%	120 Minutes

Content Area	# Items Test
Installation (including drives, guides, rollers, aprons and belts)	9
Systems and Equipment (including carousels, frames, and controls)	8
Tools, Fasteners, and Measurements	4
Maintenance, Inspections, and Troubleshooting	3
Electrical - Low Voltage	3
OSHA Safety	3

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Specification for Structural Joints Using ASTM A325 or A490 Bolts, 2004, Research Council on Structural Connections, c/o American Institute of Steel Construction, Inc., One East Wacker Drive, Suite 3100, Chicago, IL 60601-2001, www.boltcouncil.org

ASME B20.1-2015 Safety Standard for Conveyors and Related Equipment, 2015, ASME (American Society of Mechanical Engineers)

NCCER 15402-08 Troubleshooting and Repairing Conveyors, National Center for Construction and Education Research (NCEER), Pearson, <http://nccer.pearsonconstructionbooks.com/store/product.aspx?isbn=0136104320>

National Electrical Code 2020 edition, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169, (800) 344-3555, www.nfpa.org

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or

https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088, www.psionlinestore.com

C-17 EXCAVATING, GRADING AND TRENCHING CONTRACTOR

To dig, move, and place earthen material for a cut, fill, grade, or trench, including the use of explosives in connection therewith.

# of Questions	Minimum Passing Score	Time Allowed
40	75%	120 Minutes

Content Area	# Items Test
Equipment/Technique	6
Compaction	7
Soil Types and Stability	7
Estimating	7
Retaining Walls	4
Blasting	2
Shoring	3
OSHA Safety	4

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, 800-786-4452, www.shop.iccsafe.org

Principles and Practices of Commercial Construction, the 2019 10th Edition thru November 4, 2020. Cameron K. Andres and Ronald C. Smith, Pearson Education, Inc., One Lake Street, Upper Saddle River, NJ 07458, Phone (201) 236-7000
<https://www.pearson.com/en-us/subject-catalog/p/principles-and-practices-of-commercial-construction/P200000000734/9780137409006>

Modern Masonry - Brick, Block, Stone, Clois E. Kicklighter, 9th edition (2020). The Goodheart-Willcox Company, (800) 323- 0440, www.g-w.com

Pipe and Excavation Contracting, 2011, Dave Roberts, Craftsman Book Company, P.O. Box 6500, Carlsbad, CA 92018, Phone (800) 829-8123, Fax (631) 924-6580, www.craftsmanbook.com

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-20 FIRE PROTECTION CONTRACTOR

To lay out and install approved types of fire prevention and protective systems, including all mechanical apparatus, devices, piping, and equipment appurtenant thereto. The licensee shall comply with applicable provisions of the National Board of Fire Underwriters (NBFU) standards to meet all requirements of the local authorities having jurisdiction.

# of Questions	Minimum Passing Score	Time Allowed
60	75%	120 Minutes

Content Area	# Items Test
Sprinkler Systems (including Wet and Dry Chemical)	40
Water Supply, Storage and Distribution	6
Code and General Knowledge	6
Flammable Storage	4
Commercial Kitchen Equipment	4

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

NFPA 13 - Standard for the Installation of Sprinkler Systems, 2016. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471. Available at www.nfpa.org.

NFPA 13D - Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, 2016. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471. Available at www.nfpa.org.

NFPA 13R - Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies, 2016. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471. Available at www.nfpa.org.

NFPA 14 - Standard for the Installation of Standpipe and Hose Systems, 2013. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471. Available at www.nfpa.org.

NFPA 17 - Standard for Wet Chemical Extinguishing Systems, 2013. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471. Available at www.nfpa.org.

NFPA 24 - Standard for Installation of Private Fire Service Mains and Their Appurtenances, 2013. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471. Available at www.nfpa.org.

NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, 2014. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471. Available at www.nfpa.org.

C-20A FIRE REPRESSANT SYSTEMS CONTRACTOR

To install tanks, piping, sprinkler heads, dry chemical systems, CO₂ systems, and halon systems related to fire repressant systems.

# of Questions	Minimum Passing Score	Time Allowed
40	75%	120 Minutes

Content Area	# Items Test
Halon Systems	10
Foam Systems	10
Dry Chemical Systems	8
Carbon Dioxide System	2
Fire Extinguishers	4
Restaurant Equipment and Commercial Hoods	4
Safety OSHA	2

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Plumbing Code, 2018 International Code Council, 800-786-4452, shop.iccsafe.org

International Mechanical Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

NFPA 10 - Standard for Portable Fire Extinguishers, 2007, National Fire Protection Association (NFPA), (800) 344-3555, www.nfpa.org

NFPA 11 -Standard for Low-Expansion Foam, 2016, National Fire Protection Association (NFPA), (800) 344-3555, www.nfpa.org

NFPA 12 - Standard on Carbon Dioxide Extinguishing Systems, 2015. National Fire Protection Association (NFPA), (800) 344-3555, www.nfpa.org

NFPA 12A - Standard on Halon 1301 Fire Extinguishing Systems, 2015. National Fire Protection Association (NFPA), (800) 344-3555, www.nfpa.org

NFPA 17 - Standard for Dry Chemical Extinguishing Systems, 2015, National Fire Protection Association (NFPA), (800) 344-3555, www.nfpa.org

NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, 2021, National Fire Protection Association (NFPA), (800) 344-3555, www.nfpa.org

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-21 FLOORING CONTRACTOR

To apply or install floor covering material such as linoleum, rubber, vinyl, cork, asphalt, plastic aluminates, or other materials that are by custom and usage accepted in the construction industry as composition flooring; including the installation of wood floor covering and also to include floor sanding and refinishing of floor surfaces. This also includes the use of rubber granules to create a floor covering or surface.

# of Questions	Minimum Passing Score	Time Allowed
30	75%	60 Minutes

Content Area	# Items Test
Wood Strip Flooring	10
Resilient Flooring	5
Surface Preparation	5
Finishing	3
Parquet	3
OSHA Safety	2
Sanding	2

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Hardwood Floors: Laying, Sanding, and Finishing, Don Bollinger, The Taunton Press, 63 S. Main St, Newton CT, 06470; 203-426-8171, booksales@taunton.com

Stanley Complete Flooring, Meredith Books, Des Moines IA; Available on Amazon, <https://www.amazon.com/Complete-Flooring-Stanley/dp/B002SB8P7Y>

Flooring: The Essential Source Book for Planning, Selecting, and Restoring Floors, Elizabeth Wilhide, Ryland Peters & Small, Available on Amazon, <https://www.amazon.com/Flooring-Essential-Planning-Selecting-Restoring/dp/B005SNEBU4>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-22 GLAZING CONTRACTOR

To glaze or tint frames, panels, sash, and doors. To assemble and install window wall and curtain wall, shower doors, tub enclosures, mirrors, metal windows and screens, metal sliding doors, metal жалousies, store front metal and trim, plastics, tempered glass doors; including items as frames and hardware and any allied products not stipulated above but affiliated with the glass and glazing industry.

# of Questions	Minimum Passing Score	Time Allowed
50	75%	150 Minutes

Content Area	# Items Test
General Glazing and Glass Systems	15
Metal Framing	8
Installation Methods, Tools and Equipment	7
Sealant Installations	10
Code Requirements	4
Safety OSHA	6

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

ANA Glazing Manual (50th Anniversary Edition), ANA (Glazing Association of North America), <http://www.glasswebsite.com/publications.html>

ANA Guide to Architectural Glass 2010, (Glazing Association of North America), https://www.techstreet.com/standards/guide-to-architectural-glass?product_id=1877758

ANA Sealant Manual, 2008 Edition, ANA (Glazing Association of North America), <http://www.glasswebsite.com/publications.html>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR
Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088, www.psionlinestore.com

C-23 GUNITE CONTRACTOR

To pneumatically apply aggregates, cement, and water as gunite and finish the surface; including the setting of ground wires and pencil rods to establish the finished surface planes.

# of Questions	Minimum Passing Score	Time Allowed
20	75%	60 Minutes

Content Area	# Items Test
Forming Reinforcement and Placement	10
Tools and Equipment	6
Materials	4

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

ACI 506R-16 Guide to Shotcrete, 2016, ACI American Concrete Institute,
https://www.concrete.org/store/productdetail.aspx?ItemID=50616&Language=English&Units=US_AND_METRIC

Concrete Sika Sprayed Concrete Handbook, 2020, Sika Services AG,
<https://www.sika.com/content/dam/dms/corporate/n/glo-sprayed-concrete-handbook-2021.pdf>

C-27 LANDSCAPING CONTRACTOR

To prepare plots of land for architectural horticulture and to provide tree trimming, decorative treatment and arrangement of gardens, lawns, shrubs, vines, bushes, trees, and other decorative vegetation; construct conservatories, hot and green houses, drainage and sprinkler systems, all types of rockscaping and ornamental pools, fountains, ornamental walls, fences, and walks; and placement of hydro mulching for ground cover and for containment of soil. This also includes the installation of irrigation control or decorative lamp electrical wiring associated with the above that will carry 24 volts or less.

# of Questions	Minimum Passing Score	Time Allowed
50	75%	120 Minutes

Content Area	# Items Test
Irrigation Systems	10
Trees and Shrubs	6
Grass and Ground Cover	8
Drainage and Grading	8
Hardscaping including Fences	4
Regional Plants	5
Soils and Amendments	4
Low Voltage	5

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Simplified Irrigation Design, 2nd Ed, 1995, Pete Melby, John Wiley and Sons, 605 Third Ave, New York, NY 10158, (201) 748-6000, www.wiley.com

Landscape Construction, 2011, David Sauter, Delmar/Thomson Learning P.O. Box 6904, Florence, KY 41022-6904, www.delmar.com

Landscaping Principles and Practices, Jack E. Ingels, 2009, 7th Edition, www.cengage.com

Tough-As-Nails Flowers for the South, 2003 University Press of Mississippi 3825 Ridgewood Road, Jackson, MS 39211-6492, Phone #601-432-6205, 800-737-7788, Fax# 601-432-6217, or email press@ihl.state.ms.us.

C-27B TREE TRIMMING AND REMOVAL CONTRACTOR

To prune, trim, and remove trees, including stumps, and restore ground to condition similar to adjacent area. Does not include relocation and planting of field grown trees

# of Questions	Minimum Passing Score	Time Allowed
20	75%	60 Minutes

Content Area	# Items Test
Tree Pruning and Trimming	9
Tree Cutting and Stump Removal	6
Tools, Equipment, and OSHA Safety	5

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Pipe and Excavation Contracting, Dave Roberts, 1987 or 2011, Craftsman Book Company, (800) 829-8123, www.craftsmanbook.com

Landscaping Principles and Practices 7th Edition, Ingles, Delmar Publisher, Inc, Available from Amazon
<https://www.amazon.com/Landscaping-Principles-Practices-Jack-Ingels/dp/1428376410>

Landscape Operations Management, Methods, and Materials 3rd Edition, Hannebaum, Reston Publishing Company, Available from Amazon
https://www.amazon.com/Landscape-Operations-Management-Methods-Materials/dp/0138569150/ref=sr_1_1?crid=U76O2OVHBLJ3&keywords=landscape+operations&qid=1669845168&srefix=landscape+operations%2Caps%2C138&sr=8-1

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800, https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088.
www.psionlinestore.com

C-31 - MASONRY CONTRACTOR

To lay brick and other baked clay products, rough or cast stone, marble, granite, or any decorative plaster, cut and dressed stone, artificial stone and brick veneer, CMU, and structural glass, brick or block, laid with or without mortar or adhesives, manufactured precast concrete facing and back-up panels and brick or block panel; installation of fire clay products and refractories; installation of concrete fencing; installation of grout, rubble work, caulking, tuckpointing, sandblasting, mortar, washing, and cleaning related to masonry construction; to place and finish cement concrete; to drill, saw, and core concrete; and to do epoxy injection in concrete for structural purposes.

# of Questions	Minimum Passing Score	Time Allowed
60	75%	120 Minutes

Content Area	# Items Test
Plan Reading and Estimating	4
Concrete Block	12
Brick	10
Stone and Glass Block	5
Mortar	6
Concrete Placing and Finishing	8
Concrete Formwork	5
Steel Reinforcement	4
Safety - OSHA	4
Grout	2

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

Modern Masonry - Brick, Block, Stone, Clois E. Kicklighter, 9th edition (2020). The Goodheart-Willcox Company, (800) 323- 0440, www.g-w.com

Carpentry and Building Construction, 2010 or 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com

Contractor's Guide to Quality Concrete Construction, 4th Edition, 2018; American Concrete Institute, POB 9094, Farmington Hills, MI 48333 248/848-3700, www.aci-int.org

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psonlinestore.com

C-31A - CEMENT CONCRETE CONTRACTOR

To mix aggregates, cement, and water in order to make acceptable concrete; to place and finish concrete including the setting of screeds and forms; to do tuckpointing and caulking of concrete block and pre-cast stone; to caulk metal to concrete and masonry; to cut, drill, saw, core, and pressure grout concrete; to do sandblasting, waterblasting, cleaning, sealing, and epoxy injection of concrete; and to perform spall repair.

# of Questions	Minimum Passing Score	Time Allowed
70	75%	120 Minutes

Content Area	# Items Test
Estimating	5
Site Preparation including Layout	12
Formwork	10
Reinforcing Steel	8
General Concrete (Including Mixes, Placement, and Specialty Concrete)	30
Safety OSHA	5

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, 800-786-4452, <https://codes.iccsafe.org/>

Carpentry and Building Construction, 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com

Contractor's Guide to Quality Concrete Construction, 4th Edition, 2018; American Concrete Institute, POB 9094, Farmington Hills, MI 48333 248/848-3700, www.aci-int.org

Design and Control of Concrete Mixtures, Steven H. Kosmatka, William C. Panarese, 16th Edition, Portland Cement Association, 5420 Old Orchard Road, Skokie, IL 60077-1083, (847) 966-6200, www.portcement.org/bookstore

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-31B - STONE MASONRY CONTRACTOR

To construct ornamental walls, veneer walls, and structural walls or columns from marble, granite, or any decorative plaster, stone, artificial stone, rough or cast stone, or veneer stone; to lay stone in a manner that an acceptable paved surface is obtained; and to construct stone retaining walls with or without mortar, in conformance with building code requirements.

# of Questions	Minimum Passing Score	Time Allowed
25	75%	120 Minutes

Content Area	# Items Test
Mortar, Grout and Reinforcing	7
Stone Characteristics	7
Stone Masonry Construction	6
Tools and Equipment	5

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Modern Masonry - Brick, Block, Stone, Clois E. Kicklighter, 9th edition (2020). The Goodheart-Willcox Company, (800) 323- 0440, www.g-w.com Carpentry and Building Construction, 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com

Handbook for Ceramic, Glass, and Stone Tile Installation, 2018, The Tile Council of North America (TCNA)
<https://www.tcnatile.com/products-and-services/publications/218-english-publications/188-handbook/972-2021-tcna-handbook-for-ceramic-glass-and-stone-tile-installation.html>

Indiana Limestone Handbook, 22nd edition, Indiana Limestone Institute of America, Inc., <https://ililai.com/pages/handbook/>

C-32 - ORNAMENTAL, GUARDRAIL, AND FENCING CONTRACTOR

Installation of all types of structural and nonstructural units for residential, commercial, and industrial construction, both interior and exterior including, but not limited to, folding gates, guardrails, handrails, stairs, fencing and gates, window shutters and grills, roll up shades, non-electrical signs, room dividers and shields, accessories, railings, and traffic safety devices.

# of Questions	Minimum Passing Score	Time Allowed
30	75%	60 Minutes

Content Area	# Items Test
Metal Fencing	7
Metal Working Techniques	8
Layout	6
Terminology and Materials	5
OSHA Safety	4

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Fences & Retaining Walls, 2012 William McElroy, Craftsman Book Company, https://www.craftsman-book.com/media/static/previews/fences_and_retaining_walls_revised_book_preview.pdf

Modern Welding, 2020, 12th Edition, Althouse/Turnquist/Bowditch/Bowditch/Bowditch, 978-1-60525-795-2, The Goodheart-Willcox Company, Inc., 18604 West Creek Dr., Tinley Park, IL 60477-6243, (800) 323-0440, <http://www.g-w.com/>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psonlinestore.com

C-33 - PAINTING AND DECORATING CONTRACTOR

To apply materials common to the painting and decorating industry for protective and decorative purposes, including highway and parking striping and painting of playcourt lines, by the use of, but not limited to, emulsions, waxes, water repellants, epoxes, polyesters, urethane, liquid-glass, fibrous, cement, and rubber base coatings. Surface preparations of all types, caulking, sandblasting, water blasting, power cleaning, or steam cleaning preparatory to painting. Installation of wall surface covering, decorative texturing, taping, and finishing of drywall. This also includes the application of sealants in connection with the above.

# of Questions	Minimum Passing Score	Time Allowed
50	75%	120 Minutes

Content Area	# Items Test
General Knowledge	10
Materials	8
Application	8
Tools and Equipment	4
Surface Preparation	6
Wall Coverings	5
Estimating	4
OSHA Safety	5

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

PDCA Craftsman's Manual and Textbook, 8th edition, 1995, Painting and Decorating Contractors of America, <https://pdca.site-ym.com/store/ViewProduct.aspx?ID=5668203>

Paint Contractor's Manual, Dave Matis and Jobe H. Toole, Craftsman Book Company, www.amazon.com

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-35 - PILE DRIVING, PILE AND CAISSON DRILLING, AND FOUNDATION CONTRACTOR

To drill holes for pilings and caissons and to drive piles and set caissons including cutting piles and capping same. To compact earth for foundations by vibrafloater or similar systems.

# of Questions	Minimum Passing Score	Time Allowed
50	75%	120 Minutes

Content Area	# Items Test
Pile and Caisson Drilling and Foundation Preparation	30
Concrete	8
General Knowledge	6
Safety OSHA	6

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Construction Planning, Equipment, and Methods, 9th Edition, Robert L. Peurifoy, Clifford J. Schexnayder, Robert Schmitt, Aviad Shapira, McGraw-Hill Education,
<https://www.mheducation.com/highered/product/construction-planning-equipment-methods-ninth-edition-schexnayder-schmitt/M9781260108804.html>

Contractor's Guide to Quality Concrete Construction, 4th Edition, 2018; American Concrete Institute, POB 9094, Farmington Hills, MI 48333 248/848-3700, www.aci-int.org

Pipe and Excavation Contracting, Dave Roberts, 1987 or 2011, Craftsman Book Company, (800) 829-8123, www.craftsmanbook.com

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088.
www.psionlinestore.com

C-36 - PLASTERING CONTRACTOR

To apply gypsum plaster, cement, and acoustical plaster or any combination of materials common to the plastering industry to any surface which offers either a mechanical or suction type bond by spray or trowel; to apply lath or any other material that will provide a bond for the plaster including spray on, multipurpose, acoustic, insulation, and fire retardant systems; and to apply cementitious fire proofing systems.

# of Questions	Minimum Passing Score	Time Allowed
30	75%	120 Minutes

Content Area	# Items Test
General Knowledge	10
Materials	8
Application	8
Tools and Equipment	4
Surface Preparation	6
Wall Coverings	5
Estimating	4
OSHA Safety	5

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, (800) 786-4452, www.iccsafe.org

Standard Specifications for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster - ASTM C 1063, 2003, American Society for Testing and Materials, (610) 832-9585, www.astm.org

Standard Specification for Plastic (Stucco) Cement - ASTM C 1328, 2011, American Society for Testing and Materials, (610) 832-9585, www.astm.org

Standard Specification for Installation of Interior Lathing and Furring - ASTM C 841, 2003, American Society for Testing and Materials, (610) 832-9585, www.astm.org

Standard Specification for Application of Interior Gypsum Plaster - ASTM C 842, 2005, American Society for Testing and Materials, (610) 832-9585, www.astm.org

Standard Specification for Application of Portland Cement-Based Plaster - ASTM C 926, 2006, American Society for Testing and Materials, (610) 832-9585, www.astm.org

Standard Practice for Application of Class PB Exterior Insulation and Finish Systems - ASTM C 1397, 2005, American Society for Testing and Materials, (610) 832- 9585, www.astm.org

Standard Practice for Application of Exterior Insulation and Finish Systems Class PI - ASME C 1535, 2005, American Society for Testing and Materials, (610) 832-9585, www.astm.org

Gypsum Construction Handbook, 7th edition, 2014, United States Gypsum Company (USG), RS Means Publishing, 700 Longwater Drive, Norwell, MA 02061, 800-334-3509, Fax: 800-632-6732, rsmeans.reedconstructiondata.com

Portland Cement Plaster/Stucco Manual, 2003, Portland Cement Association, (847) 966-6200, www.cement.org

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-37 - PLUMBING CONTRACTOR

To install, repair, or alter complete plumbing systems which shall include supply water piping systems, hot water piping systems which includes, but is not limited to, heat pump water heaters, and hot water supply boilers with a heat input of 200,000 BTU/h or less, waste water piping systems, fuel gas piping systems, waste water treatment systems, and other fluid piping systems; the equipment, backflow prevention assemblies, instrumentation, non-electric controls, and the fixture for these systems and the venting for waste water piping systems and fuel gas piping systems; for any purpose in connection with the use and occupancy of buildings, structures, works, and premises where people or animals live, work, and assemble; including piping for vacuum, air, and medical gas systems, spas and swimming pools, lawn sprinkler systems, irrigation systems, sewer lines and related sewage disposal work performed within property lines, fire protection sprinkler systems when supervised by licensed mechanical engineers or licensed fire protection contractors, and solar hot water heating systems, and the trenching, backfilling, patching, and surface restoration in connection therewith.

# of Questions	Minimum Passing Score	Time Allowed
80	75%	180 Minutes

Content Area	# Items Test
General Knowledge	12
Fixtures and Fittings	5
Storm and Roof Drainage	5
Fuel Gas Systems	5
Safety OSHA	8
Water Supply and Distribution	10
Water Heaters	5
Sewer, Drain, Waste and Vent Systems and Excavation	15
Plumbing Math	10
Medical Gas	5

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Fuel Gas Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

Mathematics for Plumbers and Pipefitters, 8th edition, 2013, Delmar Cengage Learning,
<https://www.cengage.com/c/mathematics-for-plumbers-and-pipefitters-8e-smith/9781111642600/>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088.
www.psionlinestore.com

Uniform Plumbing Code, 2018, International Association of Plumbing and Mechanical Officials (IAPMO), 5001 E. Philadelphia St., Ontario, CA 91761, www.iapmo.org.

C-37B - IRRIGATION AND LAWN SPRINKLER SYSTEM CONTRACTOR

To install all piping and fittings, pressure regulators, back flow prevention devices, and irrigation control electrical wiring that will carry 24 volts or less, as required to provide irrigation systems for, but not limited to lawns, parks, playgrounds, highway right of ways, golf courses, and school facilities; including installation of automatic or manual controls in relation to an irrigation system.

# of Questions	Minimum Passing Score	Time Allowed
28	75%	60 Minutes

Content Area	# Items Test
Piping and Valves	11
Sprinkler Layout	8
Low Voltage Controls and Wiring	4
Sprinkler Heads	3
Excavation, Grading and Drainage	2

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, (800) 786-4452, www.iccsafe.org

Simplified Irrigation Design, Pete Melby, 1995, 2nd Edition, John Wiley and Sons, Inc.
<https://www.wiley.com/en-us/Simplified+Irrigation+Design%2C+2nd+Edition-p-9780471286226>

Landscaping Principles and Practices, Jack E. Ingels, 2009, 7th Edition, www.cengage.com

Landscape Construction, David Sauter, 2011, 3rd Edition,
<https://www.cengage.com/c/landscape-construction-3e-sauter/9781435497184PF/>

C-41 - REINFORCING STEEL CONTRACTOR

To fabricate, place and tie steel reinforcing bars (rods), of any profile, perimeter, or cross-section, that are or may be used to reinforce concrete buildings and structures.

# of Questions	Minimum Passing Score	Time Allowed
50	75%	120 Minutes

Content Area	# Items Test
Reinforcing Steel Materials (including bar supports and post-tensioning)	20
Reinforcing Steel Placement (including splices, purpose and location)	16
Plan Reading and Estimating	8
Safety - OSHA	6

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, (800) 786-4452, www.iccsafe.org

Placing Reinforcing Bars, Recommended Practices, 2019, 10th Edition, Concrete Reinforcing Steel Institute, Distribution Center, 933 N. Plum Grove Road, Schaumburg, IL 60173, (847) 517-1200, www.crsi.org

Contractor's Guide to Quality Concrete Construction, 4th Edition, 2018; American Concrete Institute, POB 9094, Farmington Hills, MI 48333 248/848-3700, www.aci-int.org

Manual of Standard Practice, 29th Edition, Concrete Reinforcing Steel Institute, Distribution Center, 933 N. Plum Grove Road, Schaumburg, IL 60173, (847) 517-1200, www.crsi.org

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-42 - ROOFING CONTRACTOR

To install roofing to an acceptable surface and provide a weather tight covering using metal; composition and cementitious shingles; wood shingles and shakes; concrete, clay, and other types of tile; built-up, modified bitumen, single ply, and fluid type systems; and other roofing materials including spray urethane foam, asphalt, and liquid (cutback) asphalt. To apply protective or reflective roofing, or both. To apply deck coatings and top coatings. To also install roof flashing in connection with all of the above.

# of Questions	Minimum Passing Score	Time Allowed
50	75%	120 Minutes

Content Area	# Items Test
Estimating and Plan Reading	5
Surface Preparation and Planning	5
Steep and Low Slope Roofing, including BUR and Waterproofing	13
Asphalt, Wood, and Hard Tile Shingles and Wood Shakes	5
Roofing Components	10
Repairs and Reroofing	6
OSHA Safety	6

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, (800) 786-4452, www.iccsafe.org

Roofing Construction & Estimating, Daniel Atcheson, 1995 (2022 Printing), Craftsman Book Company, (800) 829-8123, www.craftsmanbook.com

The NRCA Roofing Manual: Membrane Roof Systems, 2019, www.nrca.net

The NRCA Roofing Manual: Steep-slope Roof Systems, 2021, www.nrca.net

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-42B - WOOD SHINGLES AND WOOD SHAKES CONTRACTOR

To install wood shingles and shakes; including all flashing materials to form a watertight surface, staining in conjunction with shingle and shake application, and application of water repellent materials.

# of Questions	Minimum Passing Score	Time Allowed
30	75%	120 Minutes

Content Area	# Items Test
Installation Requirements	10
Surface Preparation and Planning	7
Roofing Components	6
Estimating and Plan Reading	4
OSHA Safety	3

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, (800) 786-4452, www.iccsafe.org

NRCA Roofing Manual: Steep Slope Roof Systems, 2021, The National Roofing Contractors Association, (847) 299-9070, www.nrca.net

Roofing Construction and Estimating, Daniel Atcheson, 1995, Craftsman Book Company, (800) 829-8123, www.craftsmanbook.com/products

Carpentry and Building Construction, 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-43 - SEWER, SEWAGE DISPOSAL, DRAIN, AND PIPE LAYING CONTRACTOR

To construct concrete and masonry sewers, packaged sewer disposal plants, sewage lift stations, septic tanks, and appurtenances thereto; to lay all types of piping for storm drains, water, and gas lines, irrigation and sewers, manholes in connection with the above work; and repairing and reconditioning of the pipelines, including the excavation, grading, trenching, backfilling, paving, and surfacing in connection therewith.

# of Questions	Minimum Passing Score	Time Allowed
40	75%	120 Minutes

Content Area	# Items Test
Utilities Layout, Excavation and Compaction (Backfilling)	12
Water Piping Systems	8
Sewer and Storm Water Systems	6
Septic Systems	4
Gas Piping Systems	4
Paving	2
OSHA Safety	4

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Plumbing Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

International Fuel Gas Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

Onsite Wastewater Treatment Survey and Assessment, State of Hawaii Department of Business, Economic Development and Tourism Office of Planning, Hawaii Coastal Zone Management Program, Department of Health
<https://health.hawaii.gov/wastewater/files/2013/06/onsitesurvey.pdf>

Pipe and Excavation Contracting, Dave Roberts, 1987 or 2011, Craftsman Book Company, (800) 829-8123, www.craftsmanbook.com

Asphalt in Pavement Maintenance MS-16, 3rd Edition, Asphalt Institute, <https://bookstore.asphaltinstitute.org/catalog/book/ms16>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088.
www.psionlinestore.com

C-43A - RECONDITIONING AND REPAIRING PIPELINES CONTRACTOR

To repair or recondition water and sewer lines manually or by remote control in conformity with county sewer or with water supply departments specifications.

# of Questions	Minimum Passing Score	Time Allowed
50	75%	180 Minutes

Content Area	# Items Test
General Knowledge	10
Sitework, Excavating, and Grading	10
Underground Utility Installation including: Ductile Iron Pipe Installation Clay Pipe Installation Concrete Pipe Installation	24
Safety OSHA	6

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Plumbing Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

Concrete Pipe & Box Culvert Installation 2007, American Concrete Pipe Association, 5605 N. MacArthur Blvd, Suite 340, Irving, TX 75038
info@concretepipe.org

Installation Guide for Ductile Iron Pipe, Ductile Iron Pipe Research Association, 245 Riverchase Parkway, East, Suite O, Birmingham, AL 35244. <https://dipra.org/technical-resources/design-steps/installation/installation-guides>

Pipe and Excavation Contracting, Dave Roberts, 1987 or 2011, Craftsman Book Company, (800) 829-8123, www.craftsmanbook.com

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088.
www.psionlinestore.com

C-44 - SHEET METAL CONTRACTOR

To fabricate, assemble and install cornices, flashings, gutters, downspouts, kitchen and laboratory equipment, duct work, metal flues, and free standing fireplaces and chimneys; and to install pre-manufactured sheet metal products such as metal chutes, lockers, shelving, louvres, nonbearing metal partitions, metal siding and roofing, and other sheet metal items common to the trade, and facsimile items such as plastic skylights, fiberglass ducts and fittings, including installation of metal awnings, canopies, patio covers, and seamless metal gutters.

# of Questions	Minimum Passing Score	Time Allowed
80	75%	120 Minutes

Content Area	# Items Test
General Duct System Knowledge	12
Duct System Components	12
Metal Ducts	12
Chimneys, Flues, and Vents	6
Hoods, Ventilation, and Food Service Equipment	6
Gutters and Downspouts	4
Welding and Cutting	6
Metal Roofing Systems, Flashing, and Architectural Metals	5
Sheet Metal	6
Siding	6
OSHA Safety	5

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Mechanical Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

HVAC Duct Construction Standards, Metal and Flexible, SMACNA 4th edition, 2020, <https://store.smacna.org/hvac-duct-construction-standards-metal-and-flexible-4th/>

Architectural Sheet Metal Manual, 2012, 6th Edition, Sheet Metal and Air Conditioning Contractors' National Association (SMACNA), (703) 803-2980, www.smacna.org

Sheet Metal, 2006, American Technical Publishers (ATP), 1155 West 175th Street, Homewood, IL 60430-4600, (800) 323-3471, www.americanotech.net

Modern Welding, 2013, 11th Edition, Althouse/Turnquist/Bowditch 978-1-60525-795-2, The Goodheart-Willcox Company, Inc., 18604 West Creek Dr., Tinley Park, IL 60477-6243, (800) 323-0440, www.gw.com

Carpentry and Building Construction, 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088, www.psonlinestore.com

C-48 - STRUCTURAL STEEL CONTRACTOR

To fabricate and erect structural steel shapes, bars, rods, and plates of any profile, perimeter, or cross-section, that are or may be used as structural members for buildings and structures, including riveting, bolting, welding, and rigging in connection therewith. Erection of metal buildings, passenger loading bridges, metal roofing and metal siding installed on steel framing, mechanical, overhead, sliding and roll-up steel doors, and grills and bars over windows.

# of Questions	Minimum Passing Score	Time Allowed
40	75%	120 Minutes

Content Area	# Items Test
Materials	10
Rigging	9
Steel Erecting and Metal Installations	10
Welding, Cutting, and Bolting	8
Safety - OSHA	3

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Metal Building Systems Manual, 2018, Metal Building Manufacturers Association (MBMA) and International Code Council (ISBN: 978-1-60983-875-1), <https://shop.iccsafe.org/metal-building-systems-manual-2018-edition.html>

Modern Welding, 11th Edition, 2013, Althouse, Turnquist, Bowditch, Bowditch, The Goodheart-Willcox Company, Inc., 18604 West Creek Dr., Tinley Park, IL 60477-6243, 1-800-323- 0440, www.goodheartwillcox.com

Technical Digest No. 9 - Handling and Erection of Steel Joists and Joist Girders, 3rd Edition, 2008, Steel Joint Institute, 234 W. Cheves Street, Florence, SC 29501, Phone: (843) 407-4091, Fax (843) 407-4044, www.steeljoist.org.

SDI (Steel Deck Institute) Manual of Construction with Steel Deck, 2016, 3rd Edition, Publisher-Steel Deck Institute, PO Box 25, Fox River Grove, IL 60021, Phone (847) 458-4647, Fax (847) 458-4648, <https://www.sdi.org/publications-2/publications/>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-49 - SWIMMING POOL CONTRACTOR

To construct and repair concrete, gunite, metal, or plastic type pools, whirlpool baths, hot tubs, jacuzzies, pool decks, and walkways; including, but not limited to, installation and repair of water and gas service lines, from closest point of service to pool equipment, pool piping, fittings, back flow prevention devices, pumps, heaters, chlorine dispensers, pool plastering and other types of interior finishing and sealing, ceramic tile, coping, swimming pool accessories and safety devices, fences for protective purposes if in original contract and excavation and grading in connection with swimming pool construction.

# of Questions	Minimum Passing Score	Time Allowed
50	75%	120 Minutes

Content Area	# Items Test
Calculations, Estimating and Sizing	7
Filtration Systems	8
Water Treatment Systems	4
Excavation, Forming and Reinforcing	8
Equipment Piping/Testing	4
Fuel Gas Piping/Heaters	4
Electrical	3
Circulation Systems	2
Fencing	2
Concrete and Shotcrete	8

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Plumbing Code, 2018 International Code Council, 800-786-4452, shop.iccsafe.org

International Fuel Gas Code, 2018, International Code Council, (800) 786-4452, www.iccsafe.org

Certified Pool-Spa Operators Handbook, 2006, National Swimming Pool Foundation, www.nspf.com

Design and Control of Concrete Mixtures, 2011, Steven H. Kosmatka, William C. Panarese, Portland Cement Association, 5420 Old Orchard Road, Skokie, IL 60077-1083, 847-966-6200, www.cement.org

Contractor's Guide to Quality Concrete Construction, 4th Edition, 2018; American Concrete Institute, POB 9094, Farmington Hills, MI 48333 248/848-3700, www.aci-int.org

Placing Reinforcing Bars, Recommended Practices, 2019, 10th Edition, Concrete Reinforcing Steel Institute, Distribution Center, 933 N. Plum Grove Road, Schaumburg, IL 60173, (847) 517-1200, www.crsi.org

Guide to Shotcrete, American Concrete Institute, 38880 Country Club Dr, Farmington Hills, MI, 48331, 248-848-3700, www.concrete.org

Pipe and Excavation Contracting, Dave Roberts, 2011, Craftsman Book Company, (800) 829-8123, www.craftsman1book.com

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-49A - SWIMMING POOL SERVICE CONTRACTOR

Repair and replacement of pumps, filters, heaters and related circulation piping for swimming pools, whirlpool baths, and jacuzzis; acid washing or repainting of swimming pool, whirlpool bath, and jacuzzi interiors; and repairs to pool tile, coping stones, plaster, and decks.

# of Questions	Minimum Passing Score	Time Allowed
30	75%	60 Minutes

Content Area	# Items Test
Piping and Circulation	6
Heating	4
Electrical	5
Water Chemistry	4
Pool Structures and Equipment	4
Hot Tubs and Therapeutic Equipment	4
Safety	3

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

National Electrical Code or The National Electrical Code Handbook, 2020 edition, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169, (800) 344-3555, www.nfpa.org.

Ultimate Pool Maintenance Manual: Spas, Pools, Hot Tubs, Rockscapes and Other Water Features, 3rd Edition 2001, Terry Tamminen

APSP Service Tech Manual - Basic Pool and Spa Technology, 4th, Association of Pool and Spa Professionals, 2111 Eisenhower Avenue, Alexandria, VA 22314-4698, www.apsp.org

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psonlinestore.com

C-51 - TILE CONTRACTOR

To prepare the base upon which ceramic, mosaic, granite, terrazzo, and other tile work, including all pseudo tile and marble or cultured marble products, will adhere by suction, fasteners, or by adhesives; and to install these products.

# of Questions	Minimum Passing Score	Time Allowed
40	75%	120 Minutes

Content Area	# Items Test
Plan Reading and Estimating	5
General Tile Knowledge	10
Grouting and Finishing	4
Adhesives	5
Tile Installation	9
Terrazzo	5
OSHA Safety	2

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

ANSI A108/A118/A136.1:2017, American National Standard Specifications for the Installation of Ceramic Tile, 2017, American National Standards Institute, 1899 L Street NW, Washington, DC 20036, 212-642-4980, <https://webstore.ansi.org/Standards/TCA/ANSIA108A118A1362017>

Handbook for Ceramic, Glass, and Stone Tile Installation, 2017, Tile Council of North America, <https://www.amazon.com/Handbook-CeramicGlass-Stone-Installation/dp/099776810X>

Setting Tile, 1995, John Byrne, The Taunton Press, <https://www.amazon.com/Setting-Tile-RevisedUpdated-Homebuilding/dp/1561580805>

Terrazzo Specification and Design Guide, North American Terrazzo, Inc, <https://www.contractorcampus.com/terrazzospecification-and-design-guide.html>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-52 - VENTILATING AND AIR CONDITIONING CONTRACTOR

To fabricate, assemble, and install warm-air heating and air cooling systems including heating and cooling solar systems, complete ventilating systems and complete air conditioning systems including, but not limited to, piping, controls (other than electrical), instrumentation, building automation, energy management, and trenching, backfilling, patching, and surface restoration in connection with the installation of the air conditioning systems; and including installation of thermal and acoustical insulation necessary to maintain heat, or sound, or both, within the systems above. This also includes the installation of heat pumps related to the air conditioning system.

# of Questions	Minimum Passing Score	Time Allowed
80	75%	180 Minutes

Content Area	# Items Test
General Knowledge and Code Requirements	34
Load Calculations	6
Control	10
Ducting and Insulation	8
Piping	8
Safety OSHA	4
Equipment	10

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Mechanical Code, 2018, International Code Council, 800-786-4452, shop.iccsafe.org

Modern Refrigeration and Air Conditioning, 21st edition, Goodheart-Wilcox Company, www.g-w.com

Manual N - Commercial Load Calculation for Small Commercial Buildings, 5th Edition, 2008, Air Conditioning Contractors of America (ACCA), (703) 575-4477, www.acca.org

HVAC Duct Construction Standards, Metal and Flexible, SMACNA 4th edition, 2020, <https://store.smacna.org/hvac-duct-construction-standards-metal-and-flexible-4th/>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-55 - WATERPROOFING CONTRACTOR

To apply felt, glass, asphaltum, epoxy, pitch, silicone, elastomeric coatings, sheet membranes or any other materials or combination of materials to surfaces to prevent water and water vapor from penetrating and passing the materials. Work shall include, but not be limited to, waterproofing exterior walls and between slabs, both above and below grade, planter boxes, tank linings and application of tank coatings, and application to parking decks, play courts, and walking decks to form a watertight non-skid surface, but not to include the work of the C-42 roofing contractor. This also includes surface preparations of all types, caulking, sandblasting, waterblasting, power cleaning, or steam cleaning preparatory to waterproofing.

# of Questions	Minimum Passing Score	Time Allowed
25	75%	120 Minutes

Content Area	# Items Test
Above-Grade Waterproofing Systems	10
Below-Grade Waterproofing Systems	7
Vapor Barriers	3
Damp Proofing	3
OSHA Safety	2

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Building Code, 2018, International Code Council, 800-786-4452, <https://codes.iccsafe.org/>

Waterproofing the Building Envelope, 1993, Michael T. Kubal, McGraw-Hill, Inc. Available from Amazon <https://www.amazon.com/Waterproofing-Building-Envelope-Michael-Kubal/dp/0070358591>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926
OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-56 - WELDING CONTRACTOR

On site job layout, cut, assemble and weld the metal products including, but not limited to, pipe lines, tanks, pressure vessels, guard rails, and fire escapes, by welding techniques using carbon arc, metal arc, submerged arc, flux core, resistance, and oxyacetylene processes.

# of Questions	Minimum Passing Score	Time Allowed
50	75%	60 Minutes

Content Area	# Items Test
Oxyacetylene Welding and Cutting	10
Blueprint Reading	5
Pipe Welding	5
Materials	11
SMAW	7
GTAW	5
Testing and Inspection	3
Safety OSHA	4

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Modern Welding, 2020, 12th Edition, Althouse/Turnquist/Bowditch/Bowditch/Bowditch, 978-1-60525-795-2, The Goodheart-Willcox Company, Inc., 18604 West Creek Dr., Tinley Park, IL 60477-6243, (800) 323-0440, <http://www.g-w.com/>

Pipe Welding Procedures, Rampaul, H. (2nd Ed., 2002). Industrial Press, Inc., 200 Madison Avenue, New York, NY 10016, (888) 528-7852, www.industrialpress.com

Welding Technology Fundamentals, 4th Edition, 2010, Kevin E. Bowditch, William A. Bowditch, www.g-w.com

Welding Print Reading, 5th Edition, W. Richard Polanin, John R. Walker.

Oxyfuel Gas Welding, 6th Edition, Kevin E. Bowditch, Mark A. Bowditch.

Shielded Metal Arc Welding, 1st Edition, 2016, John R. Walker, W. Richard Polanin, www.g-w.com

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com

C-57 - WELL CONTRACTOR

To bore, drill, excavate, case, cement, clean, and repair water wells; and to install injection wells, water well pumps and pump controls, concrete pump base and waterline to adjacent storage tank.

# of Questions	Minimum Passing Score	Time Allowed
24	75%	60 Minutes

Content Area	# Items Test
General Knowledge	6
Well Geology	4
Drilling and Location	4
Pumps and Pumping	3
Casings and Screens	3
Yield and Abandonment	2
Water Quality	2

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

Groundwater and Wells, Robert J. Sterrett, Johnson Screens Publisher, 2007;
https://my.ngwa.org/NC_Product?id=a185000000BYuaJAAT

Hawaii Well Construction and Pump Installation Standards, Second Edition, 2004, Hawaii Commission on Water Resource Management, 1151 Punchbowl Street, Honolulu, HI 96813, www.cca.hawaii.gov/pvl

Manual of Water Well Construction Practices, 3rd Edition, 2017, National Ground Water Association, 601 Dempsey Rd Westerville, OH 430818978, 800-551-7379, www.ngwa.org

C-60 SOLAR POWER SYSTEMS CONTRACTOR

To assemble and install photovoltaic panels, batteries, controls, and related low voltage D.C. wiring

# of Questions	Minimum Passing Score	Time Allowed
50	75%	120 Minutes

Content Area	# Items Test
Photovoltaic Theory	5
Electrical Interconnection	8
Permitting, Inspection, and Utility Interconnections	3
Photovoltaic Components	10
Photovoltaic Installation	7
Estimating, Calculations, and Design	12
Safety OSHA	5

EXAMINATION REFERENCE MATERIAL

This examination is OPEN BOOK. The following reference material is provided in the testing center for your use during the exam. No highlighting or notes of any sort may be made in the book during the exam.

National Electrical Code, 2020 edition, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169, (800) 344-3555, www.nfpa.org.

The following reference material is **NOT** allowed in the examination center.

National Electrical Safety Code, 2017 Edition, Institute of Electrical Electronics Engineers, Inc., 800-699-9277, <http://www.techstreet.com/ieee>

Ugly's Electrical References, George V. Hart, 2020, Jones and Bartlett, (800) 832-0034, www.uglys.net

Photovoltaic Systems, 3rd edition, James Dunlap, American Technical Publishers, Orland Park, IL 60467- 5756, www.atplearning.com

C-61 SOLAR ENERGY SYSTEMS CONTRACTOR

To assemble and install solar hot water systems in residential and commercial buildings and swimming pools, provided that this shall not include the installation of heat pumps or water heaters. To install solar heating and cooling systems in residential, commercial, and industrial buildings.

# of Questions	Minimum Passing Score	Time Allowed
25	75%	60 Minutes

Content Area	# Items Test
Piping, Materials, and Methods	7
System Design	7
Pumps and Storage Systems	4
Collectors	4
System Controls	3

EXAMINATION REFERENCE MATERIAL

This examination is CLOSED BOOK. The following reference material is NOT allowed in the examination center.

International Plumbing Code, 2018, International Code Council, 800-786-4452,
<https://shop.iccsafe.org/international-codes/2018-international-plumbing-coder.html>

Solar Water and Pool Heating Design and Installation Manual. Florida Solar Energy Center, 1679 Clearlake Road, Cocoa, FL 32922-5703, 1997.

Convert Your Home to Solar Energy by Everett M Barber, Jr., Joseph R Provey. Taunton Press, Incorporated. December 07, 2010

Solar Water Heating, Publisher: New Society Publishers, Bob Ramlow, Benjamin Nusz

C-62 POLE AND LINE CONTRACTOR

To dress, ground, anchor, and erect poles that will carry high voltage (600 volts phase to phase or more) electrical wires; and to connect and string electrical wires, fixtures, and apparatus to and between the poles, including installation of pole mounted transformers. Work shall include street and highway lighting and traffic signal systems, and the work of the C-63 high voltage electrical contractor.

# of Questions	Minimum Passing Score	Time Allowed
50	75%	120 Minutes

Content Area	# Items Test
Electrical Supply Stations	5
Distribution Lines	9
Poles and Supporting Structures	7
Transformers	7
Grounding and Bonding	5
Underground Systems	6
Roadway Lighting and Signal Systems	6
Safety	5

EXAMINATION REFERENCE MATERIAL

This examination is OPEN BOOK. The following reference material is provided in the testing center for your use during the exam. No highlighting or notes of any sort may be made in the book during the exam.

NFPA 70 National Electrical Code, 2020 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org

ANSI C2-2017, National Electrical Safety Code, 2017, Institute of Electrical and Electronics Engineers (IEEE), 10662 Los Vaqueros Circle, Box 3014, Los Alamitos, CA 90720-1264, www.ieee.org

The following reference material is **NOT** allowed in the examination center.

The Lineman's and Cableman's Handbook, Thirteenth Edition, 2017, McGraw-Hill Publishing, Inc., 860 Taylor Station Road, Blacklick, OH 43004, www.mhprofessional.com

C-63 HIGH VOLTAGE ELECTRICAL CONTRACTOR

To place, install, erect, or connect any electrical wires, fixtures, appliances, apparatus, conduits, raceways, and to do trenching, backfilling, patching, and surface restoration in connection with the installation of conduits and lines that transmit, transform, or utilize electrical energy of more than 600 volts phase to phase.

# of Questions	Minimum Passing Score	Time Allowed
50	75%	120 Minutes

Content Area	# Items Test
Transformers	6
General Electrical Knowledge	5
Conductors	5
Overhead Lines	7
Underground Lines	4
Equipment and Safety	6
Grounding and Bonding Methods	5
Service Drops and Laterals	4
Supporting Structures	3
Electric Supply Stations	5

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This examination is OPEN BOOK. The following reference material is provided in the testing center for your use during the exam. No highlighting or notes of any sort may be made in the book during the exam.

NFPA 70 National Electrical Code, 2020 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org

ANSI C2-2017, National Electrical Safety Code, 2017, Institute of Electrical and Electronics Engineers (IEEE), 10662 Los Vaqueros Circle, Box 3014, Los Alamitos, CA 90720-1264, www.ieee.org

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Ugly's Electrical References, George V. Hart, 2020, Jones and Bartlett, (800) 832-0034, www.uglys.net

Manual on Uniform Traffic Control Devices for Streets and Highways 2009, U.S. Department of Transportation - Federal Highway Administration, <http://mutcd.fhwa.dot.gov/pdfs/2003r1/pdf-index.htm>

Code of Federal Regulations - 29 CFR Part 1926 (OSHA), with latest available amendments, U.S. Government Printing Office, (866) 512-1800 or https://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1926

OR

Code of Federal Regulations - 29 CFR Part 1926 Selections by PSI, with latest available amendments, (866) 589-3088. www.psionlinestore.com