



PSI Services LLC

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

STATE OF NEVADA CONTRACTORS

“C” CLASSIFICATION EXAMINATIONS

CANDIDATE INFORMATION BULLETIN

| | | | |
|--|---|---|---|
| Examinations by PSI Services LLC | 1 | Required Identification | 4 |
| Examination Scheduling Procedures | 1 | Security Procedures | 5 |
| Fees and Eligibility..... | 1 | Taking the Examination by Computer | 5 |
| Internet..... | 2 | Tutorial..... | 5 |
| Telephone | 4 | Test Question Screen..... | 5 |
| Rescheduling an Examination | 4 | Examination Review | 6 |
| Canceling an Examination | 4 | Score Reporting | 6 |
| Missed Appointment or Late Cancellation..... | 4 | Duplicate Score Reports | 6 |
| Exam Accommodations..... | 4 | Tips for Preparing for your License Examination | 6 |
| Emergency Examination Center Closing | 4 | Reference Sources..... | 6 |
| Examination Site Locations..... | 4 | Examination Content Outlines | 6 |
| Reporting to the Examination Site | 4 | | |

Please refer to our website to check for the most updated information at <https://test-takers.psiexams.com/nvcon>

EXAMINATIONS BY PSI

This Candidate Information Bulletin provides you with information about the examination and application process for becoming licensed as a contractor in the State of Nevada.

Nevada State law requires contractors to be licensed and regulated by the Nevada State Contractors' Board. Eligibility for examination is determined by the Board.

The State Contractors' Board has contracted with PSI Services LLC (PSI) to conduct its examination program. PSI provides examinations through a network of computer examination centers in Nevada. PSI works closely with the State to be certain that examinations meet local as well as national requirements in basic principles and examination development standards.

HOW TO OBTAIN A LICENSE

Visit www.nscb.nv.gov to complete the online application form or download the application packet. Questions concerning the application process should be directed to the Nevada State Contractors Board.

If the Board accepts your qualifications to register for an examination, the Board will mail you a Candidate Eligibility letter, along with the Candidate Information Bulletin, which contains the PSI Registration Form and instructions for selecting an examination date.

Each applicant is required to submit a set of fingerprints for the purpose of conducting a state and national fingerprint-based criminal history record.

All questions and requests for information about examinations should be directed to PSI.

PSI Services LLC
(855) 205-5827

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

Upon passing the examination, PSI will forward your results to the Board for processing.

EXAMINATION SCHEDULING PROCEDURES

FEES AND ELIGIBILITY

The following fee table lists the applicable fee for each examination. The fee is for each registration, whether you are taking the examination for the first time or repeating. A candidate who tests unsuccessfully must wait **2 weeks** before retaking each portion. If you fail the third time, your application becomes void and you must re-apply directly with the Nevada State Contractors' Board.

Note: The \$140 fee is only applicable if the 2nd exam is the CMS. If you are taking 2 trades, e.g., C3 and C4, they would be \$95 per exam.

EXAMINATION FEES

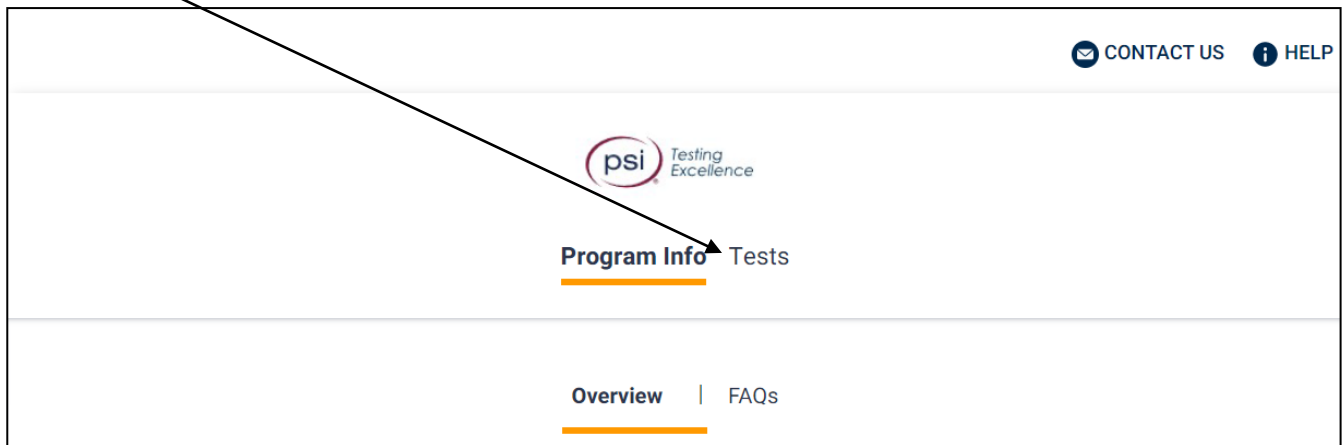
| | |
|--------------------------|-------|
| One Examination Portion | \$95 |
| Two Examination Portions | \$140 |

NOTE: REGISTRATION FEES ARE NOT REFUNDABLE OR TRANSFERABLE. REGISTRATION FEES WILL EXPIRE ON THE SAME DATE AS YOUR ELIGIBILITY EXPIRATION DATE.

ONLINE (<https://test-takers.psiexams.com/nvcon>)

For the **fastest and most convenient** examination scheduling process, register for your examinations online by accessing PSI's registration Website: [Click Here](#) or on the email confirmation you received from PSI.

1. Select **TESTS** to create an account.



2. 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

3. 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.

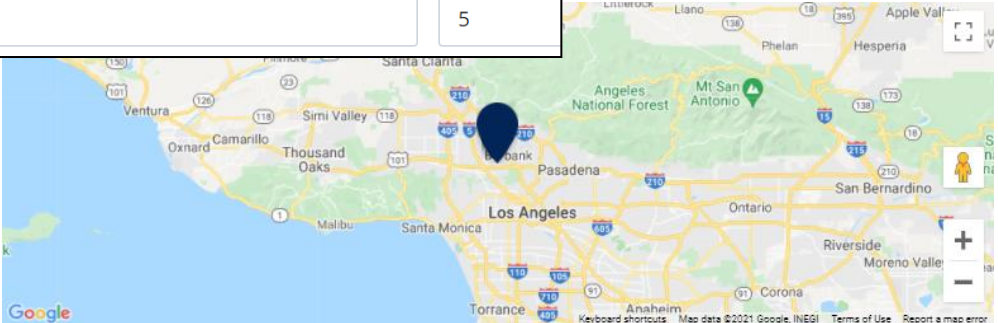
| | |
|---|--|
| <input type="text" value="ID *"/> | |
| <input type="text" value="First Name *"/> | <input type="text" value="Last Name *"/> |
| <input type="text" value="Middle Name"/> | <input type="text" value="Generation"/> |
| <input type="text" value="Email *"/> | |
| <input type="text" value="Password *"/> | 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 |
| <input type="text" value="Confirm Password *"/> | |

4. Enter the “City or Postal Code” and select **FIND**.

Search Test Center Location

Radius

5



5. 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

6. You are now ready to pay.

Payment

Billing Address

Order Summary

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

Total Price

CONTINUE

7. 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

3

TELEPHONE

To speak with a Customer Service Representative, call (855) 205-5827, Monday through Friday between 4:30 am and 7:00 pm, or Saturday-Sunday between 6:00 am and 2:30 pm, Pacific Time. To register by phone, you need a valid VISA, MasterCard, American Express or Discover.

RESCHEDULING AN EXAMINATION

A candidate who tests unsuccessfully must wait 2 weeks before retaking the examination. It is not possible to make a new examination appointment on the same day you have taken an examination; this is due to processing and reporting scores. A candidate who tests unsuccessfully on a Wednesday can call the next day, Thursday to reschedule, however may not retest for 2 weeks from the date of failure. You may reschedule at <https://test-takers.psiexams.com/nvcon>. Or call PSI at (855) 205-5827.

CANCELING AN EXAMINATION APPOINTMENT

You may cancel and reschedule an examination appointment without forfeiting your fee if your *cancellation notice is received 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 (855) 205-5827.

Note: A voice mail message is not an acceptable form of cancellation. Please use the PSI Website or call PSI and speak to a Customer Service Representative.

MISSED APPOINTMENT OR LATE CANCELLATION

Your registration will be invalid, you will not be able to take the examination as scheduled, and you will forfeit your examination fee, if you:

- Do not cancel your appointment 2 days before the schedule examination date;
- Do not appear for your examination appointment;
- Arrive after examination start time;
- Do not present proper identification when you arrive for the examination.

EXAM ACCOMMODATION

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 for 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 examination schedule by calling (855) 205-5827. Every effort will be made to reschedule your examination at a convenient time as soon as possible.

EXAMINATION SITE LOCATIONS

LAS VEGAS

Brainseed Testing Services

5740 S Eastern Ave, Suite 200

Las Vegas, Nevada 89121

From I-5 S - At Exit 37, head right on the ramp for Tropicana Ave toward UNLV. Turn right onto Paradise Rd go about .8 of a mile and then turn left onto E Russell Rd. Go about 1.6 miles and then turn right onto S Eastern Ave. The Miracle Flights Plaza offices will be on the left. Brainseed Testing Center is in building 5740, on the second floor.

RENO

Brainseed Testing Services

5250 Neil Road Suite 110

Reno, NV 89502

From I-580 take exit 63 to the S. Virginia St., then turn left on the McCarran Blvd, then left on to Neil Road. The testing centers will be on your right.

ELKO

225 Silver Street Ste 102

Elko, Nevada 89801

From I-80, take the Mountain City exit towards downtown Elko, exit #301. Turn right on Mountain City and continue on Mountain City Highway. Continue on Silver Street until you reach the destination.

Additionally, PSI has examination centers in many other regions across the United States. You may take this examination at any of these locations. Once you have paid for the examination, enter your zip code and a list of the testing sites closest to you will appear.

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) forms of identification.

Candidates must register for the exam with their LEGAL first and last name as it appears on their government issued identification. The identification below must match the first and last name under which the candidate is registered.

PRIMARY IDENTIFICATION (with photo) - Choose One

- State issued driver's license
- State issued identification card
- US Government Issued Passport

- US Government Issued Military Identification Card
 - US Government Issued Alien Registration Card
 - Canadian Government Issued ID
- NOTE: ID must contain candidate's photo, be valid and unexpired.

If the candidate fails to bring proper identification or the candidate names do not match, the candidates will not be allowed to test, and their examination fee will not be refunded.

SECURITY PROCEDURES

- Only non-programmable calculators that are silent, battery-operated, do not have paper tape printing capabilities, and do not have a keyboard containing the alphabet will be allowed in the examination site.
- 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 such as, but not limited to: open sweaters, cardigans, shawls, scarves, hoodies, vests, jackets and coats are not permitted in the testing room. **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.
- 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 guests of any nature, 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 being 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 examination sponsor 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 examination sponsor.
- Copying or communicating examination content is violation of a candidate's contract with PSI, and federal and state law. Either may result in the disqualification of examination results and may lead to legal action.
- 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 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 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.

NON-SCORED QUESTIONS

Your examination contains non-scored questions. The use of such questions is an essential step in developing accurate future examinations. These questions will NOT be scored and NOT timed unless specified in the Content Outlines section of this Bulletin.

EXAMINATION REVIEW

PSI, in cooperation with the Nevada State Contractors' Board, will be consistently evaluating the examinations being administered to ensure that the examinations accurately measure competency in the required knowledge areas. Comments may be entered on the computer keyboard during the examination by clicking the Comments button on the function bar of the test question screen.

Your comments regarding the questions and the examinations are welcomed. Comments will be analyzed by PSI examination development staff. While PSI does not respond to individuals regarding these comments, all substantive comments are reviewed. If a discrepancy is found during the

comment review, PSI and the department may re-evaluate candidates results and adjust them accordingly. This is the only review of examination materials available to applicants.

SCORE REPORTING

Your score will be given to you immediately following completion of the examination. The following summary describes the score reporting process:

- If you **pass**, you will receive a successful score report.
- If you **do not pass**, you will receive a diagnostic report indicating your strengths and weaknesses by examination type on the score report.

DUPLICATE SCORE REPORTS

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

TIPS FOR PREPARING FOR YOUR LICENSE EXAMINATION

The following suggestions will help you prepare for your examination.

- Planned preparation increases your likelihood of passing.
- Start with a current copy of this Candidate Information Bulletin and use the examination content outline as the basis of your study.
- Read study materials that cover all the topics in the content outline.
- Take notes on what you study. Putting information in writing helps you commit it to memory, and it is also an excellent business practice. Underline or highlight key ideas that will help with a later review.
- Discuss new terms or concepts as frequently as you can with colleagues. This will test your understanding and reinforce ideas.
- Your studies will be most effective if you study frequently, for periods of about 45 to 60 minutes. Concentration tends to wander when you study for longer periods of time.

Now you can take the practice exam online at <https://test-takers.psiexams.com/nvcon> to prepare for your Contractor Examination.

Please note that practice exams are intended only to help testing candidates become familiar with the general types of questions that will appear on a licensing examination. They ARE NOT a substitute for proper education and study. Furthermore, scoring well on the practice exam does not guarantee a positive outcome on an actual licensing examination. You may take the practice exams an unlimited number of times. You will need to pay each time.

Many of these reference materials are also available for purchase at www.psonlinestore.com or by calling the PSI Online Store, toll-free, at (866) 589-3088.

Titles currently in stock are listed on the order form near the end of this candidate information bulletin.

EXAMINATION CONTENT OUTLINES

CONTRACTOR MANAGEMENT SURVEY EXAMINATION

SCOPE OF WORK

| # of Questions | Time Allowed |
|--------------------|--------------|
| 60 Scored Items | 120 Minutes |
| 3 Non-scored Items | 6 Minutes |

| Minimum Passing Score |
|-----------------------|
| 45 (75% correct) |

CONTENT OUTLINE

| Subject Area | # of Items |
|--------------------------|------------|
| Licensing | 10 |
| Estimating and Bidding | 7 |
| Lien Law | 3 |
| Financial Management | 12 |
| Tax Laws | 5 |
| Labor Laws | 5 |
| Project Management | 3 |
| Contracts | 6 |
| Risk Management | 4 |
| Environmental and Safety | 5 |

REFERENCE LIST

Candidates may use a silent, nonprinting, non-programmable calculator in the examination center.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Construction Business and Law Manual for Nevada, PSI, 3210 E Tropicana Ave, Las Vegas, NV 89121 (See order form at the end of this bulletin.)*

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

TRADE EXAMINATIONS

The Nevada State Contractors Board has approved the Examination Content Outlines. The outlines reflect the minimum knowledge required by contractors to perform their duties to the public in a competent and responsible manner. Changes in the content of the examinations will not be made until changes are made in the reference books.

The examination questions reference specific national codes. However, when practicing as a contractor you must check with each local jurisdiction to ensure compliance with additional regulations or modifications adopted by that jurisdiction.

If there is conflicting information between a code, law, or regulation and another authorized reference text, please be aware that the requirements of the code, law, or regulation prevail, and that the examination questions will be referenced to the code, law, or regulation.

The examination may include questions on:

- Reading and interpreting construction codes and regulations.
- Nevada Health department regulations.
- Appropriate building codes.
- Trade materials, tools, equipment and methods.
- Nevada Occupational Safety and Health Rules.

C-1 PLUMBING AND HEATING CONTRACTOR

SCOPE OF WORK

A person who holds a classification C-1 license may perform any of the work authorized for the subclassifications of the classification C-1 license, including: the installation of boilers and pipes for hot water and steam, including all related fittings, valves, gauges, pumps, radiators, convectors, tanks and lines for fuel oil, chimneys, flues, insulation and other appurtenances; the fabrication and installation of all systems of sprinklers for protection from fire, including the appurtenances; the insulation of pipes, ducts and related equipment. A C-1 licensee may also perform the installation and maintenance of material and fixtures to create sanitary conditions in buildings by providing a permanent means for a supply of safe water and any sanitary waste and vent systems that are required to ensure the appropriate removal of waste from these buildings; drainage systems for roofs; hydronic heating systems not exceeding 200,000 British thermal units; systems of landscape irrigation; systems to heat potable water, including, without limitation, solar equipment; a permanent means to supply gas for residential and industrial purposes; and pipes for compressed air, vacuums and gases for medical use. A C-1 licensee may also perform the selection, cutting, shaping, fabrication and installation of sheet metal, including, without limitation, cornices, flashings, gutters, leaders, downspouts for rainwater, pans, food service equipment, ducts, louvers, patented chimneys, flues, and metal roof systems. A C-1 licensee may also perform the fabrication and installation of systems for the heating, evaporative cooling and circulation of air, including, without limitation, the installation of solar equipment for that purpose; the installation of pipes from the source of supply of liquefied petroleum and natural gas into a building

or structure and the installation of the related vents; the installation, replacement and repair of water heaters, including the connection to existing lines for potable water and gas, the necessary venting and other incidental connections; the fabrication, installation, repair and removal of pipes, pumps, valves and other equipment used in the transfer of chilled water for the control of temperature; the installation, replacement and repair of systems to replenish breathing air for firefighters; and the fabrication, installation, repair and removal of pipes and equipment used for the transmission of water, steam, gas, chemicals, food and other substances for industrial use.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 120 | 84 | 5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|---|------------|
| Boilers | 4 |
| Gas Systems | 8 |
| Cleanouts | 4 |
| Fixtures and Equipment | 4 |
| Hydronics | 3 |
| Water Heaters/Venting | 6 |
| Piping, Valves, and Controls | 3 |
| Sheet Metal | 3 |
| Water Supply | 8 |
| Hangers and Supports | 5 |
| Drain, Waste, and Vents | 10 |
| Backflow | 4 |
| Traps and Interceptors | 8 |
| Isometric Analysis/Plumbing Mathematics | 8 |
| Safety | 5 |
| Joints and Connections | 4 |
| Solar | 4 |
| General Plumbing Requirements | 7 |
| Fire Sprinklers | 5 |
| Storm Drainage | 5 |
| Industrial Piping | 3 |
| Breathing Systems for Firefighters | 3 |
| Chilled Water Piping | 6 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials (IAPMO), available from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, (800) 786-4452, www.iccsafe.org.
- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org
- *NFPA 54 - Standard for National Fuel Gas Code*, 2012, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- *NFPA 58 - Standard for Liquid Petroleum Gas Code*, 2014, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- *NFPA 13 - Standard for Installation of Sprinkler Systems*, 2019, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *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 (See order form at the end of the Candidate Information Bulletin.)
- *Modern Hydronic Heating for Residential and Light Commercial Buildings*, John Siegenthaler, P.E., 2004, 2nd edition, Delmar/Thomson Learning, (800) 347-7707, www.delmarlearning.com.
- *Solar Water and Pool Heating Design and Installation Manual*, Florida Solar Energy Center, 1679 Clearlake Road, Cocoa, FL 32922-5703, (321) 638-1015, www.fsec.ucf.edu

- *Mathematics for Plumbers and Pipefitters*, Lee Smith, 8th Edition, 2013, www.cengage.com
- *Modern Refrigeration and Air Conditioning*, 19th or 20th Edition, Althouse, Turnquist, & Bracciano, www.g-w.com
- *Modern Welding*, 11th Edition, 2013, Goodheart-Willcox Company, Inc., 18604 West Creek Drive, Tinley Park, IL 60477-6243, www.g-w.com
- *Facility Piping Systems Handbook*, 3rd Edition, McGraw-Hill Publishing, Inc., PO Box 182604, Columbus, OH 43272, (800) 338-3987, books.mcgraw-hill.com

C-1A BOILERS

SCOPE OF WORK

The installation of boilers including all related fittings, piping, valves, gauges, pumps, radiators, convectors, tanks and lines for fuel oil, chimneys, flues, insulation and other appurtenances.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 50 | 35 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|---------------------|------------|
| Safety | 5 |
| Fuel Oil | 8 |
| Gas | 8 |
| Hydronics | 15 |
| Valves and Controls | 2 |
| Boilers | 12 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org
- *NFPA 54 - Standard for National Fuel Gas Code*, 2012, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- *NFPA 31 - Standard for the Installation of Oil-Burning Equipment*. (2006 or 2011). National Fire Protection Association, 1 Batterymarch, Quincy, MA 02269-9101, www.nfpa.org
- *NFPA 85 - Boiler and Combustion Systems Hazards Code*, 2007, National Fire Protection Association (NFPA), (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Modern Hydronic Heating for Residential and Light Commercial Buildings*, John Siegenthaler, P.E., 2004, 2nd edition, Delmar/Thomson Learning, (800) 347-7707, www.delmarlearning.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_stand_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 (See order form at the end of the Candidate Information Bulletin.)
- *HVAC Pump Handbook* by James B. Rishel, 2nd Edition, 2006, McGraw-Hill Professional Publishing.

C-1B FIRE SPRINKLERS

SCOPE OF WORK

The fabrication and installation of all systems of sprinklers for protection from fire, including the appurtenances.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 45 | 32 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|-------------------------------------|------------|
| Sprinkler Systems | 16 |
| Standpipe Systems | 16 |
| Inspection, Testing and Maintenance | 8 |
| General Regulations | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- *NFPA 14 - Standard for Installation of Standpipe and Hose Systems*, 2007, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- *NFPA 25 - Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems*, 2008, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- *NFPA 13 - Standard for Installation of Sprinkler Systems*, 2007, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Nevada Fire Marshall Code Chapter 477*

C-1C PIPE AND DUCT INSULATION

SCOPE OF WORK

The insulation of pipes and ducts to reduce the loss of heat.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 30 | 21 | 1 Hour |

CONTENT OUTLINE

| Subject Area | # of Items |
|-----------------|------------|
| Pipe Insulation | 12 |
| Duct Insulation | 12 |
| Safety | 6 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Commercial and Industrial Insulation Standards*, 7th Edition, National Insulation Association, 99 Canal Center Plaza, Suite 222 Alexandria, Virginia 22314, (703) 683-6422 | Fax (703) 549-4838.
- *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 (See order form at the end of the Candidate Information Bulletin.)

C-1D PLUMBING CONTRACTOR

SCOPE OF WORK

The installation and maintenance of: (1) Material and fixtures to create sanitary conditions in buildings by providing a permanent means for a supply of safe water and any sanitary waste and vent systems that are required to ensure the appropriate removal of waste from these buildings; (2) Drainage systems for roofs; (3) Hydronic heating systems not exceeding 200,000 British thermal units; (4) Systems of landscape irrigation; (5) Systems to heat potable water, including, without limitation, solar equipment; (6) A permanent means to supply gas for residential and industrial purposes; and (7) Pipes for compressed air, vacuums and gases for medical use. In addition to any work specified in this paragraph, a person who holds a subclassification C-1d license may install piping for water and gas beginning at the edge of a building and ending at the utility meter for that building.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 80 | 56 | 3 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|------------------------------|------------|
| Gas Systems | 8 |
| Cleanouts | 4 |
| Fixtures and Equipment | 3 |
| Hydronics | 3 |
| Water Heaters/Venting | 6 |
| Piping, Valves, and Controls | 5 |
| Water Supply | 8 |

| | |
|---|---|
| Hangers and Supports | 4 |
| Drain, Waste, and Vents | 8 |
| Backflow | 4 |
| Traps and Interceptors | 4 |
| Isometric Analysis/Plumbing Mathematics | 6 |
| Safety | 5 |
| Joints and Connections | 3 |
| Solar | 3 |
| General Plumbing Requirements | 3 |
| Storm Drainage | 3 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials (IAPMO), available from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, (800) 786-4452, www.iccsafe.org.
- *NFPA 54 - Standard for National Fuel Gas Code*, 2012, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- *NFPA 58 - Standard for Liquid Petroleum Gas Code*, 2014, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- *Uniform Mechanical Code*, 2012, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Mathematics for Plumbers and Pipefitters*, Lee Smith, 8th Edition, 2013, www.cengage.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 (See order form at the end of the Candidate Information Bulletin.)

- *Modern Hydronic Heating for Residential and Light Commercial Buildings*, John Siegenthaler, P.E., 2004, 2nd edition, Delmar/Thomson Learning, (800) 347-7707, www.delmarlearning.com.
- *Solar Water and Pool Heating Design and Installation Manual*, 1997, Florida Solar Energy Center, 1670 Clearlake Road, Cocoa, FL 32922, (321) 638-1015, www.fsec.ucf.edu
- *Pipefitter's Handbook*, 1967, 3rd Edition, Forest R. Linsey, Industrial Press, Inc., 200 Madison Avenue, New York, NY 10016, (888) 528-7852, www.industrialpress.com
- *Pipe Welding Procedures*, Hoobasar Rampaul, 2003, Industrial Press, 200 Madison Ave., New York, NY 10016, (888) 528-7852, www.industrialpress.com

World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

- *International Building Code*, 2018, International Code Council, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795, www.iccsafe.org.

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

C-1E SHEET METAL

SCOPE OF WORK

The fabrication and installation of sheet metal, including, without limitation, cornices, flashings, gutters, leaders, downspouts for rainwater, pans, food service equipment, ducts, louvers, patented chimneys, flues, and metal roof systems, but not the fabrication or installation of equipment which uses refrigeration as an integral part of the system.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 60 | 42 | 2.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|---|------------|
| Ducts | 20 |
| Chimneys, Flues, and Vents | 8 |
| Hoods, Ventilation, Equipment, and Food Service Equipment | 10 |
| Metal Roofing Systems, Flashing, and Architectural Metals | 10 |
| Gutters and Downspouts | 5 |
| Tools and Equipment | 4 |
| Safety | 3 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO

The following reference materials are not allowed in the examination center:

- *HVAC Duct Construction Standards, Metal and Flexible*, 2005, 3rd edition, Sheet Metal and Air Conditioning Contractors' National Association, Inc., (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.americatech.net
- *Architectural Sheet Metal Manual*, 2003, 6th Edition, Sheet Metal and Air Conditioning Contractors' National Association (SMACNA), (703) 803-2980, www.smacna.org
- *NRCA Roofing Manual: Steep Slope Roof Systems*, 2017, The National Roofing Contractors Association, (847) 299-9070, 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_stand_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 (See order form at the end of the Candidate Information Bulletin.)

C-1F HEATING, COOLING, AND CIRCULATING AIR CONTRACTOR

SCOPE OF WORK

The fabrication and installation of systems for the heating, evaporative cooling and circulation of air, excluding cooling systems, which require refrigeration as an integral part of the system.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 30 | 21 | 1 Hour |

CONTENT OUTLINE

| Subject Area | # of Items |
|--------------|------------|
| Safety | 3 |
| Piping | 9 |

| | |
|---------------------|----|
| Equipment | 10 |
| Valves and Controls | 3 |
| Ducts | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Modern Refrigeration and Air Conditioning*, 19th or 20th Edition, Althouse, Turnquist, & Bracciano, 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 (See order form at the end of the Candidate Information Bulletin.)

C-1G PIPES AND VENTS FOR GAS CONTRACTOR

SCOPE OF WORK

The installation of pipes from the source of supply of liquefied petroleum and natural gas into a building or structure and the installation of the related vents.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 50 | 35 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|--------------------------|------------|
| Natural Gas Piping | 12 |
| LP Gas Piping | 12 |
| Chimneys Flues and Vents | 10 |
| Appliance Installation | 5 |
| Sizing and Estimating | 5 |
| Testing and Inspection | 3 |
| Combustion Air | 3 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org
- *NFPA 54 - Standard for National Fuel Gas Code*, 2012, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- *NFPA 58 - Standard for Liquid Petroleum Gas Code*, 2014, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

C-1H WATER HEATER CONTRACTOR

SCOPE OF WORK

The installation, replacement, and repair of water heaters, including the connection to existing lines for potable water and gas, the necessary venting, and other incidental connections.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 20 | 14 | 45 Minutes |

CONTENT OUTLINE

| Subject Area | # of Items |
|--------------------------------|------------|
| Code | 16 |
| General Water Heater Knowledge | 4 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials (IAPMO), available from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, (800) 786-4452, www.iccsafe.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *The Water Heater Workbook: A Hands-On Guide to Water Heaters*, Suzanne Weingarten, Larry Weingarten, Elemental Enterprises, PO Box 928, Monterey, CA 93942.

C-1I CHILLED-WATER PIPING

SCOPE OF WORK

The fabrication, installation, repair and removal of pipes, pumps, valves and other equipment used in the transfer of chilled water for the control of temperature. The provisions of this paragraph do not authorize a holder of a subclassification C-1i license to fabricate, install, repair, remove, or connect to a chiller.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 30 | 21 | 75 Minutes |

CONTENT OUTLINE

| Subject Area | # of Items |
|--|------------|
| Piping Materials | 10 |
| Piping Installation | 10 |
| Valves, Controls, Pumps, and Equipment | 7 |
| Safety | 3 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials (IAPMO), available from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, (800) 786-4452, www.iccsafe.org.
- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Modern Refrigeration and Air Conditioning*, 19th or 20th Edition, Althouse, Turnquist, & Bracciano, www.g-w.com
- *Mathematics for Plumbers and Pipefitters*, Lee Smith, 8th Edition, 2013, www.cengage.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 (See order form at the end of the Candidate Information Bulletin.)

C-1J SYSTEMS TO REPLENISH BREATHING AIR FOR FIREFIGHTERS

SCOPE OF WORK

The installation, replacement and repair of systems to replenish breathing air for firefighters

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 25 | 19 | 60 Minutes |

CONTENT OUTLINE

| Subject Area | # of Items |
|---|------------|
| Systems to Replenish Breathing Air For Firefighters | 25 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials (IAPMO), available from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, (800) 786-4452, www.iccsafe.org.

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

C-1K INDUSTRIAL PIPING

SCOPE OF WORK

The fabrication, installation, repair and removal of pipes and equipment used for the transmission of water, steam, gas, chemicals, food and other substances for industrial use.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 50 | 37 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|-----------------------------|------------|
| Pipe Fitting | 5 |
| Piping Materials | 7 |
| Process Piping | 6 |
| Gas Piping | 6 |
| Water and Steam Piping | 5 |
| Refrigerant Piping | 5 |
| Hangers and Supports | 6 |
| Estimating and Plan Reading | 3 |
| Welding | 3 |
| Safety | 4 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials (IAPMO), available from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, (800) 786-4452, www.iccsafe.org.
- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Modern Refrigeration and Air Conditioning*, 19th or 20th Edition, Althouse, Turnquist, & Bracciano, www.g-w.com
- *Mathematics for Plumbers and Pipefitters*, Lee Smith, 8th Edition, 2013, www.cengage.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_st_andard_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 (See order form at the end of the Candidate Information Bulletin.)

- *Facility Piping Systems Handbook*, 3rd Edition, McGraw-Hill Publishing, Inc., PO Box 182604, Columbus, OH 43272, (800) 338-3987, books.mcgraw-hill.com
- *ASME B31.3-2004: Process Piping*, 2004, American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10065, (800) 843-2763, www.asme.org
- *Modern Welding*, 11th Edition, 2013, Goodheart-Willcox Company, Inc., 18604 West Creek Drive, Tinley Park, IL 60477-6243, www.g-w.com

C-2 ELECTRICAL CONTRACTOR

SCOPE OF WORK

A person who has a license designated classification C-2 may install any electrical wires, fixtures, appliances, apparatuses, raceways and conduits.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 80 | 56 | 4 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|---------------------------------------|------------|
| General Electrical Knowledge | 6 |
| Service, Feeders, and Branch Circuits | 7 |
| Grounding and Bonding | 7 |
| Conductors and Cables | 8 |
| Raceways and Boxes | 7 |
| Special Occupancies and Equipment | 5 |
| Electrical Power | 6 |
| Motors | 6 |
| Low Voltage | 2 |
| Lighting | 5 |
| Illuminated Signs | 2 |
| Fire Detection and Alarm Systems | 2 |
| Safety Information | 8 |
| Transmission Lines | 5 |
| Overcurrent Protection | 4 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- *National Electrical Code or National Electrical Code Handbook*, 2017, Earley, Sheehan, Caloggero, National Fire Protection Assoc, (800) 344-3555, www.nfpa.org
- *NFPA 72 - Standard for National Fire Alarm Code or National Fire Alarm Code Handbook*, 2010 or 2013,

National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Ugly's Electrical References*, George V. Hart, 2008 or 2011, or 2014, Jones and Bartlett, (800) 832-0034, www.uglys.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 (See order form at the end of the Candidate Information Bulletin.)
- *National Electrical Safety Code* 2012, Institute of Electrical Electronics Engineers, Inc., 345 East 47th Street, New York, NY 10017, (732) 981-0060.
- *Lineman's and Cableman's Handbook*, Shoemaker and Mack, 13th edition (2017) or 14th edition (2023), <https://www.psionlinestore.com/linemans-and-cablemans-handbook-14th-edition/> (Starting 6/1/2024 only the 14th edition can be used.)

C-2A ELECTRICAL WIRING CONTRACTOR

SCOPE OF WORK

The installation, alteration and repair of electrical wires, fixtures, appliances and apparatuses, and the performance of any related wiring on existing structures.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 60 | 42 | 2.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|---------------------------------------|------------|
| General Electrical Knowledge | 4 |
| Service, Feeders, and Branch Circuits | 5 |
| Grounding and Bonding | 6 |
| Conductors and Cables | 8 |
| Overcurrent Protection | 4 |
| Special Occupancies and Equipment | 5 |
| Electrical Power | 5 |
| Low Voltage | 2 |
| Lighting | 4 |
| Illuminated Signs | 2 |

| | |
|----------------------------------|---|
| Fire Detection and Alarm Systems | 4 |
| Safety Information | 3 |
| Motors | 3 |
| Raceways and Enclosures | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- *National Electrical Code or National Electrical Code Handbook*, 2017, Earley, Sheehan, Caloggero, National Fire Protection Assoc, (800) 344-3555, www.nfpa.org
- *NFPA 72 - Standard for National Fire Alarm Code or National Fire Alarm Code Handbook*, 2010, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Ugly's Electrical References*, George V. Hart, 2008 or 2011, or 2014, Jones and Bartlett, (800) 832-0034, www.uglys.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_stand_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 (See order form at the end of the Candidate Information Bulletin.)

C-2C FIRE DETECTION CONTRACTOR

SCOPE OF WORK

The installation, alteration and repair of electrical sensors and alarms used to detect heat and smoke, including all appurtenances and related wiring.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 55 | 39 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|------------------------------|------------|
| General Electrical Knowledge | 5 |
| Wiring | 8 |
| Grounding | 3 |
| Power Supply | 5 |
| Detectors | 15 |
| Alarms Notification | 14 |
| General Regulations | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- *National Electrical Code or National Electrical Code Handbook*, 2017, Earley, Sheehan, Caloggero, National Fire Protection Assoc, (800) 344-3555, www.nfpa.org
- *NFPA 101- Standard for Life Safety Code*, 2003, NFPA, 1 Batterymarch, Quincy, MA 02269
- *NFPA 72 - Standard for National Fire Alarm Code or National Fire Alarm Code Handbook*, 2007, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

Fire Alarm Signaling Systems, 1994, 2nd edition, Bukowski & O'Laughlin, National Fire Protection Association, 1 Batterymarch, Quincy, MA 02269, (480) 948-3363
Certified Alarm Technicians Manual - Level 1, 2001, call 888-447-1689 or 972-807-6821 to order.

C-2D LOW VOLTAGE

SCOPE OF WORK

The installation, alteration and repair of systems that use fiber optics or do not exceed 91 volts, including telephone systems, sound systems, cable television systems, closed

circuit video systems, satellite dish antennas, instrumentation and temperature controls, computer networking systems and landscape lighting.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 35 | 25 | 1 Hour |

CONTENT OUTLINE

| Subject Area | # of Items |
|---|------------|
| Sound and Communications | 5 |
| Services, Feeders, Branch Circuits and Overcurrent Protection | 5 |
| Conductors | 5 |
| General Knowledge and Calculations | 6 |
| Grounding and Bonding | 4 |
| Power Supplies | 3 |
| Intrusion Alarm Systems | 5 |
| Utilization and general use equipment | 1 |
| Raceways and Enclosures | 1 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *National Electrical Code or National Electrical Code Handbook*, 2017, Earley, Sheehan, Caloggero, National Fire Protection Assoc, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

Telecommunications Wiring, Clyde N. Herrick, 3rd edition, 2001, Prentice Hall PTR, Upper Saddle River, NJ 07458
Certified Alarm Technicians Manual - Level 1, 2001, call 888-447-1689 or 972-807-6821 to order.

C-2E LINES TO TRANSMIT ELECTRICITY

SCOPE OF WORK

The installation, alteration and repair of overhead or underground secondary lines which transmit electricity, including the installation of poles, towers, anchors, guys, transformers, substations, circuit breakers and any other related hardware, equipment or systems.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 40 | 28 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------------|------------|
| Transformers | 6 |
| Electrical Knowledge | 5 |
| Conductors | 5 |
| Overhead Lines | 4 |
| Underground Lines | 4 |
| Equipment and Safety | 4 |
| Grounding Methods | 3 |
| Service Drops and Laterals | 3 |
| Poles and Structures | 3 |
| Electric Supply Stations | 3 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

National Electrical Code or National Electrical Code Handbook, 2017, Earley, Sheehan, Caloggero, National Fire Protection Assoc, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *National Electrical Safety Code* (2007), Institute of Electrical Electronics Engineers, Inc., 345 East 47th Street, New York, NY 10017, (732) 981-0060
- *Lineman's and Cableman's Handbook*, Shoemaker and Mack, 13th edition (2017) or 14th edition (2023), <https://www.psonlinestore.com/linemans-and->

[cablemans-handbook-14th-edition/](#) (Starting 6/1/2024 only the 14th edition can be used.)

- *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 (See order form at the end of the Candidate Information Bulletin.)

C-2F RESIDENTIAL WIRING

SCOPE OF WORK

The installation, alteration and repair of electrical wires, fixtures, appliances and apparatuses whose electrical current does not exceed 600 volts on new or existing structures which do not exceed more than three stories above the ground.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 50 | 35 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|--|------------|
| General Electrical Knowledge | 9 |
| Service, Feeders, and Branch Circuits | 10 |
| Grounding and Bonding | 7 |
| Conductors and Cables | 7 |
| Overcurrent Protection | 4 |
| Electrical Power | 2 |
| Low Voltage | 2 |
| Fire and Intrusion Detection and Alarm Systems | 2 |
| Safety Information | 4 |
| Raceways and Enclosures | 3 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *National Electrical Code or National Electrical Code Handbook*, 2017, Earley, Sheehan, Caloggero, National Fire Protection Assoc, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in

the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. **Temporary tabs**, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Ugly's Electrical References*, George V. Hart, 2008 or 2011, or 2014, Jones and Bartlett, (800) 832-0034, www.uglys.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 (See order form at the end of the Candidate Information Bulletin.)

C-2G PHOTOVOLTAICS

SCOPE OF WORK

The installation, alteration and repair of photovoltaic cells, batteries and inverters used in the conversion of solar energy into electricity, but not the installation, alteration or repair of electrical wires beyond the service panel.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 75 | 56 | 150 Minutes |

CONTENT OUTLINE

| Subject Area | # of Items |
|--|------------|
| Photovoltaic Theory | 5 |
| Electrical Interconnection | 15 |
| Permitting, Inspection, and Utility Interconnections | 5 |
| Photovoltaic Components | 15 |
| Photovoltaic Installation | 10 |
| Estimating, Calculations, and Design | 20 |
| Safety | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *National Electrical Code or National Electrical Code Handbook*, 2017, Earley, Sheehan, Caloggero, National Fire Protection Assoc, (800) 344-3555, www.nfpa.org,

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Photovoltaic Systems*, 3rd Edition, 2011, James Dunlap, 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_stand_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 (See order form at the end of the Candidate Information Bulletin.)
- *Ugly's Electrical References*, George V. Hart, 2008 or 2011, or 2014, Jones and Bartlett, (800) 832-0034, www.uglys.net

C-3 CARPENTRY, MAINTENANCE, AND MINOR REPAIRS

SCOPE OF WORK

The construction of form work, framing or rough carpentry necessary to construct framed structures, the installation or repair of individual components of framing systems, rough carpentry or associated work, including the construction or installation of subflooring, siding, exterior staircases and railings, roof decking, truss members and sheathing, and the fabrication, installation, remodeling and repair of wood and wood products for structural and finishing purposes, such as doors, windows, cabinets and fixtures. The installation, repair and finishing of cabinets, sash casing, door casing, wooden flooring, baseboards, countertops and other millwork. Finish carpentry does not include the installation of ceramic tile, marble and artificial or cultured stone. The installation of material used for the insulation of buildings and the application of weather stripping and caulking for the internal control of the effects of weather. The fabrication, erection and installation of guides, counterweights, tracks, weather stripping, automatic and manual controls and all other apparatuses and equipment appurtenant to the efficient installation and operation of overhead doors. The installation, taping and finishing of drywall, panels and assemblies of gypsum wallboard, sheathing acoustical tile and studs made of sheet metal for the framing of ceilings and nonstructural partitioning.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 60 | 42 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|-------------------|------------|
| Safety | 6 |
| Insulation | 1 |
| Windows and Doors | 3 |
| Rough Carpentry | 23 |
| Finish Carpentry | 14 |
| Drywall | 7 |
| Siding | 2 |
| Sheet Metal | 4 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *International Building Code*, 2018, International Code Council, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795, www.iccsafe.org.

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *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_stand_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 (See order form at the end of the Candidate Information Bulletin.)
- *Carpentry and Building Construction*, 2010 or 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com
- *BCSI: Guide to Good Practice for Handling, Installing, Restraining, and Bracing of Metal Plate Connected Wood Trusses*, 2013, Structural Building Components Association and Truss Plate Institute, (608) 274-4849, www.sbcindustry.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, rsmeans.reedconstructiondata.com
- *Finish Carpenter's Manual*, Jim Tolpin, 1993, Craftsman Book Company, (800) 829-8123, www.craftsman-book.com

C-3A CARPENTRY AND REPAIRS

SCOPE OF WORK

The construction of form work, framing or rough carpentry necessary to construct framed structures, the installation or repair of individual components of framing systems, rough carpentry or associated work, including the construction or installation of subflooring, siding, exterior staircases and railings, roof decking, truss members and sheathing, and the fabrication, installation, remodeling and repair of wood and wood products for structural and finishing purposes, such as doors, windows, cabinets and fixtures.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 46 | 33 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|-------------------|------------|
| Safety | 6 |
| Windows and Doors | 3 |
| Rough Carpentry | 16 |
| Finish Carpentry | 16 |
| Siding | 3 |
| Drywall | 2 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *International Building Code*, 2018, International Code Council, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795, www.iccsafe.org.

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated.

References may be tabbed/indexed with permanent tabs only. **Temporary tabs**, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *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 (See order form at the end of the Candidate Information Bulletin.)
- *Carpentry and Building Construction*, 2010 or 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.craftsman-book.com

C-3B FINISH CARPENTRY

SCOPE OF WORK

The installation, repair and finishing of cabinets, sash casing, door casing, wooden flooring, baseboards, countertops and other millwork. Finish carpentry does not include the installation of ceramic tile, marble and artificial or cultured stone.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 30 | 21 | 1 Hour |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------|------------|
| Fabrication | 6 |
| Installation | 5 |
| Materials | 5 |
| Finishing | 4 |
| Hand tools | 3 |
| Safety | 3 |
| Machines | 2 |
| Plans and Estimating | 2 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is CLOSED BOOK.

The following reference materials are not allowed in the examination center:

- *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 (See order form at the end of the Candidate Information Bulletin.)

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

C-3E DRYWALL

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 30 | 21 | 90 Minutes |

CONTENT OUTLINE

| Subject Area | # of Items |
|--------------------------------------|------------|
| Installation | 6 |
| Taping and Finishing | 6 |
| Materials | 4 |
| Special Applications and Accessories | 4 |
| Code Requirements | 3 |
| Metal Framing Installation | 7 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

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

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
- *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>

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted,

underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

C-4 PAINTING AND DECORATING CONTRACTOR

SCOPE OF WORK

A person who holds a classification C-4 license may, apply any type of paint, varnish, shellac, stain, protective coatings and wax, attach papers, fabrics and plastics to the surfaces of buildings and their appurtenances, examine and prepare surfaces for painting and wallcovering, and install drywall, metal studs and acoustical tile.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 55 | 39 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|-------------------------|------------|
| Materials | 8 |
| Surface Preparation | 12 |
| Application | 7 |
| Tools | 6 |
| Problems and Prevention | 4 |
| Safety | 5 |
| Drywall | 5 |
| Color | 3 |
| Sheet Metal | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is CLOSED BOOK.

The following reference materials are not allowed in the examination center:

- *Painting & Decorating Craftsman's Manual and Textbook* - Eighth Edition, 1995, Painting and Decorating Contractors of America, 3913 Old Lee Hwy, Ste 33B, Fairfax, VA 22030
- *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 (See order form
 at the end of the Candidate Information Bulletin.)

- 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

C-4A PAINTING CONTRACTOR

SCOPE OF WORK

The application of all paints, varnishes, protective coatings, shellacs, stains and other pigment by brush, spray or roller.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 30 | 21 | 1 Hour |

CONTENT OUTLINE

| Subject Area | # of Items |
|-------------------------|------------|
| Materials | 6 |
| Surface Preparation | 6 |
| Application | 6 |
| Tools | 4 |
| Problems and Prevention | 2 |
| Safety | 4 |
| Color | 2 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is CLOSED BOOK.

The following reference materials are not allowed in the examination center:

- *Painting & Decorating Craftsman's Manual and Textbook*, Eighth Edition, 1995, Painting and Decorating Contractors of America, 3913 Old Lee Hwy, Ste 33B, Fairfax, VA 22030
- *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 (See order form
 at the end of the Candidate Information Bulletin.)

C-4E DRYWALL

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 20 | 14 | 1 Hour |

CONTENT OUTLINE

| Subject Area | # of Items |
|--------------------------------------|------------|
| Installation | 6 |
| Taping and Finishing | 6 |
| Materials | 4 |
| Special Applications and Accessories | 4 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

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

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
- *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>

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. **Temporary tabs**, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

C-4F SHEET METAL STUDS

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 20 | 14 | 1 Hour |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------------|------------|
| Code Requirements | 4 |
| Metal Framing Installation | 16 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

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

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
- *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>

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

C-5 CONCRETE CONTRACTOR

SCOPE OF WORK

A person who holds a classification C-5 license may:

- Prepare the surface and place reinforcement steel and other embedded materials essential to or comprising an integral part of the concrete or concrete construction;
- pour, place, finish and install concrete;
- construct and assemble forms, molds, slipforms and pans;
- apply concrete sealants and other waterproofing products; and
- saw, cut, drill and core concrete and asphaltic paving material.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 60 | 42 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|------------------------|------------|
| Safety | 6 |
| Concrete-Earthwork | 7 |
| Concrete | 15 |
| Concrete-Reinforcement | 10 |
| Concrete-Formwork | 12 |
| Concrete - Cutting | 10 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *International Building Code*, 2018, International Code Council, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795, www.iccsafe.org.
- *ACI 318-11 or ACI 318-14 (2011 or 2014): Building Code Requirements for Structural Concrete and Commentary*, American Concrete Institute, (248) 848-3700, www.concrete.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- 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 (See order form at the end of the Candidate Information Bulletin.)
- SP-4 Formwork for Concrete, 2014, 8th Edition, David W. Johnston, American Concrete Institute, <https://www.concrete.org/store.aspx>
- The Contractor's Guide to Quality Concrete Construction, 2005, 3rd Edition, American Concrete Institute, 38800 International Way/ Country Club Drive, PO Box 9094, Farmington Hills, MI 48333, (248) 848-3700, www.aci-int.org
- Pipe and Excavation Contracting, Dave Roberts, 2011, Craftsman Book Company, (800) 829-8123, www.craftsman-book.com/products
- Sawcutting Joints in Concrete, Bruce A. Suprenant, 1995, Concrete Construction Magazine, (773) 824-2400, <http://www.concreteconstruction.net/concrete-articles/sawcutting-joints-in-concrete.aspx>
- Sawcutting Concrete Flatwork, Rosalie Johnston, 1994, Concrete Construction Magazine, (773) 824-2400, <http://www.concreteconstruction.net/concrete-articles/saw-cutting-concrete-flatwork.aspx>
- Taking the Tedium Out of Cutting, 1981, Concrete Construction Magazine, (773) 824-2400, <http://www.concreteconstruction.net/concrete-articles/taking-the-tedium-out-of-cutting.aspx>
- Tips on Cutting Concrete, 1987, Concrete Construction Magazine, (773) 824-2400, <http://www.concreteconstruction.net/concrete-articles/tips-on-cutting-concrete.aspx>

C-6B SIGN CONTRACTOR

SCOPE OF WORK

The fabrication, installation and erection of electrical signs and the installation of any related wiring.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 50 | 35 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|--------------------------|------------|
| National Electrical Code | 13 |
| Uniform Sign Code | 15 |
| Neon | 10 |
| Sheet Metal | 6 |
| Safety | 6 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed. This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- National Electrical Code or National Electrical Code Handbook, 2017, Earley, Sheehan, Caloggero, National Fire Protection Assoc, (800) 344-3555, www.nfpa.org
- Uniform Sign Code, 1997, <http://shop.iccsafe.org/1997-uniform-sign-code-download-41551.html>

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- Neon Techniques, 4th Edition, Sign Language Store, (800) 843-2763
- 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 (See order form at the end of the Candidate Information Bulletin.)
- Sheet Metal, Leo Meyer, 2006, American Technical Publishers (ATP), 1155 West 175th Street, Homewood, IL 60430- 4600, (800) 323-3471, www.americanotech.net

C-7 ELEVATION AND CONVEYANCE CONTRACTOR

SCOPE OF WORK

A person who holds a classification C-7 license may fabricate and install systems designed to transport persons, animals and other chattels in elevators, conveyors, dumbwaiters and escalators, including any appurtenant controls, signal systems, devices and equipment.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 50 | 35 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------------|------------|
| Wire Rope | 2 |
| Clearance and Space Limits | 8 |
| Electrical | 2 |
| Testing | 4 |
| Engineering and Inspection | 4 |
| Safety Devices | 9 |
| Controls | 2 |
| Operating Limitations | 2 |
| Drive Mechanisms | 4 |
| Fire Service | 3 |
| Maintenance and Repairs | 6 |
| Escalators and Dumbwaiters | 2 |
| Emergency Power | 2 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- ASME A17.1 Safety Code for Elevators and Escalators, 2010, American Society of Mechanical Engineers, Three Park Ave, New York, NY 10065. (Effective 5/1/24 the examination will be based on the 2019 edition)
- ASME A18.1 Safety Standard for Platform Lifts and Stairway Chairlifts, 2014, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10065 (Effective 5/1/24 the examination will be based on the 2017 edition)

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- ANSI A10.4 Safety Requirements for Personnel Hoists, 2007, American National Standards Institute, 1819 L Street NW, Washington, DC 20036 (Effective 5/1/24 the examination will be based on the 2016 edition)
- ANSI A117.1 Accessible and Usable Buildings and Facilities, 2009, American National Standards Institute, 1819 L Street NW, Washington, DC 20036 (Effective 5/1/24 the examination will be based on the 2017 edition)

C-10 LANDSCAPE CONTRACTING

SCOPE OF WORK

A person who holds a classification C-10 license may grade and prepare plots of land for architectural horticulture, decoratively treat, arrange, plant and maintain gardens, lawns, shrubs, vines, bushes, trees and other vegetation, construct systems of drainage and landscape irrigation, install rocks, sand, gravel and other landscape materials that use Xeriscape principles, hydroseed by spraying mulch, seeds and nutrients under pressure, control soil erosion and install nonengineered decorative landscape ponds or nonengineered prefabricated trellises and arbors. Additionally, a person who holds a classification C-10 license may install nonload-bearing walkways using brick or stone not exceeding 200 square feet in area, patio areas using brick or stone not exceeding 400 square feet in area, landscape retaining walls to a height not exceeding 3 feet and landscape lighting not exceeding 24 volts.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 60 | 42 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|--|------------|
| Planning, Design and Pre-construction activities | 7 |
| Soils, Site Preparation, Drainage, and Erosion Control | 8 |
| Plants Ground cover, trees, and other vegetation | 9 |
| Irrigation | 13 |
| Walkways, patios, retaining walls, and hardscaping | 8 |
| Ponds and water features | 4 |
| Xeriscaping | 6 |
| Low Voltage Lighting | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is CLOSED BOOK.

The following reference materials are not allowed in the examination center:

- *Simplified Irrigation Design*, Pete Melby, 1995, 2nd Edition, John Wiley and Sons, (212) 850-6011, www.wiley.com
- *Landscaping Principles & Practices*, Jack Ingels, 7th Edition, Delmar Thompson Learning, (800) 347-7707, www.delmarlearning.com
- *Waterwise Landscaping with Trees, Shrubs, and Vines: A Xeriscape Guide for the Rocky Mountain Region, California, and the Desert Southwest*, James M Knopf,

2003, 2nd Edition, BookMasters, Inc., (800) 537-6727, www.bookmasters.com

- *Landscape Construction*, David Sauter, 2011, 3rd Edition, Delmar Thompson Learning, (800) 347-7707, www.delmarlearning.com

C-13 SHEET METAL CONTRACTOR

SCOPE OF WORK

The fabrication and installation of sheet metal, including, without limitation, cornices, flashings, gutters, leaders, downspouts for rainwater, pans, food service equipment, ducts, louvers, patented chimneys, flues, and metal roof systems, but not the fabrication or installation of equipment which uses refrigeration as an integral part of the system.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 60 | 42 | 2.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|---|------------|
| Ducts | 20 |
| Chimneys, Flues, and Vents | 8 |
| Hoods, Ventilation, Equipment, and Food Service Equipment | 10 |
| Metal Roofing Systems, Flashing, and Architectural Metals | 10 |
| Gutters and Downspouts | 5 |
| Tools and Equipment | 4 |
| Safety | 3 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org
- *International Building Code*, 2018, International Code Council, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795, www.iccsafe.org.

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose

or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. **Temporary tabs**, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *HVAC Duct Construction Standards, Metal and Flexible*, 2005, 3rd edition, Sheet Metal and Air Conditioning Contractors' National Association, Inc., (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
- *Architectural Sheet Metal Manual*, 2003, 6th Edition, Sheet Metal and Air Conditioning Contractors' National
- *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 (See order form at the end of the Candidate Information Bulletin.)

C-14 STEEL REINFORCING AND ERECTION

SCOPE OF WORK

The fabrication, placement and tying of steel reinforcing bars (rods), and post-tensioning to reinforce concrete buildings and structures. The fabrication and erection of structural steel shapes and plates used as structural members, or tanks, including any connected riveting, welding and rigging. The assembling, casting, cutting, shaping, stamping, forging, fabricating and installing of metals for the architectural treatment, ornamental decoration or security of structures, but does not include the work authorized by a classification C-13 license issued by the Board in the specialty of using sheet metal. The installation of such materials as are generally accepted by contractors for use as curtain wall materials. The installation of metal doors and frames and metal windows and frames. The construction of window walls in the fronts of stores and the installation of lightweight metals to a height not exceeding 25 feet from the threshold of the entrance on the ground floor of the store. The construction of structures made of prefabricated steel for the support, shelter or enclosure of persons, animals or other chattels. The fabrication and installation of awnings and louvers made of wood, fabric, plastics, metal or other acceptable products. Rigging as it is customarily accepted by contractors and the operation of cranes.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 60 | 42 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|-------------------|------------|
| Post-tensioning | 10 |
| Reinforcing Steel | 10 |

| | |
|--------------------------|----|
| Safety - OSHA Subpart R | 7 |
| Safety - General | 6 |
| Steel Decks | 7 |
| Steel Joists and Girders | 20 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed. This examination is CLOSED BOOK.

The following reference materials are not allowed in the examination center:

- *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 (See order form at the end of the Candidate Information Bulletin.)
- *Instructional Manual for Training and Certification of Field Personnel for Unbonded Post-Tensioning*, 2003, Post Tensioning Institute, 1717 West Northern Avenue, Ste 114, Phoenix, AZ 85021, (602) 870-7540
- *Placing Reinforcing Bars*, Recommended Practices, 2011, 9th Edition, Concrete Reinforcing Steel Institute, 933 North Plum Grove Rd, Schaumburg, IL 60173, Phone (800) 328-6306, <http://www.crsi.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.
- *CRSI Manual of Standard Practice* 2009, <https://netforum.avectra.com/eweb/shopping/shopping.aspx?site=mycrsi&cart=0&shopsearch=&shopsearchCat=M&erchandise&productCat=>
- *SDI Manual of Construction with Steel Deck*, 2006, 2nd Edition, Steel Deck Institute, (847) 458-4647, www.sdi.org.

C-14A REINFORCING STEEL

SCOPE OF WORK

The fabrication, placement and tying of steel reinforcing bars (rods), and post-tensioning to reinforce concrete buildings and structures.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 30 | 21 | 1 Hour |

CONTENT OUTLINE

| Subject Area | # of Items |
|-------------------|------------|
| Post-tensioning | 11 |
| Reinforcing Steel | 13 |
| Safety - General | 6 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed. This examination is CLOSED BOOK.

The following reference materials are not allowed in the examination center:

- *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 (See order form at the end of the Candidate Information Bulletin.)
- *Placing Reinforcing Bars*, Recommended Practices, 2011, 9th Edition, Concrete Reinforcing Steel Institute, 933 North Plum Grove Rd, Schaumburg, IL 60173, Phone (800) 328-6306, <http://www.crsi.org>
- *Instructional Manual for Training and Certification of Field Personnel for Unbonded Post-Tensioning*, 2003, Post Tensioning Institute, 1717 West Northern Avenue, Ste 114, Phoenix, AZ 85021, (602) 870-7540
- *CRSI Manual of Standard Practice* 2009, <https://netforum.avectra.com/eweb/shopping/shopping.aspx?site=mycrsi&cart=0&shopsearch=&shopsearchCat=M&erchandise&productCat=>

C-15 ROOFING AND SIDING CONTRACTOR

SCOPE OF WORK

The installation, application, alteration and repair of watertight and weatherproof material used on roofs, such as asphalt, pitch, tar, felt, flax, shakes, shingles, aluminum, tile, slate and urethane, but not the installation of siding or devices, such as stripping, for the internal control of the effects of weather, the installation, alteration and repair of siding, by use of material such as wood, aluminum, enameled steel, plastic and glass, to make the walls of a structure watertight and weatherproof, the installation of glass, metal, plastic, urethane and other material used for the insulation of buildings, the application of solutions of rubber, latex, asphalt, pitch, tar and other materials to surfaces to prevent water in any form from penetrating the surfaces.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 60 | 45 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|-----------------------------|------------|
| Safety | 5 |
| Roofing Substrates | 8 |
| Steep Roofing | 16 |
| Roofing Repairs | 4 |
| Elastomeric Roofing | 7 |
| Built-up Bituminous Roofing | 7 |
| Sheet Metal and Flashing | 3 |
| Siding | 8 |
| Photovoltaic Systems | 2 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *International Building Code*, 2018, International Code Council, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795, www.iccsafe.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *NRCA Roofing Manual: Steep Slope Roof Systems*, 2017, The National Roofing Contractors Association, (847) 299-9070, www.nrca.net
- *NRCA Roofing Manual: Metal Panel and SPF Roof Systems*, 2016, The National Roofing Contractors Association, (847) 299-9070, www.nrca.net
- *NRCA Roofing Manual: Membrane Roofing Systems*, 2019, The National Roofing Contractors Association, (847) 299-9070, 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_stand_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 (See order form at the end of the Candidate Information Bulletin.)

- *Standard Practice for Installation of Rigid Poly Vinyl Chloride (PVC) Siding and Soffit - ASTM D 4756 - 06*, 2006 American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, (610) 832-9585, www.astm.org
- *Roofing Construction and Estimating*, Daniel Atcheson, 1995, Craftsman Book Company, 6085 Corte de Cedro, Carlsbad, CA 92009, (800) 829-8123, www.craftsman-book.com
- *Carpentry and Building Construction*, 2010 or 2016 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com
- *Guidelines for Roof-mounted Photovoltaic System Installations*, 2009, The National Roofing Contractors Association, (847) 299-9070, www.nrca.net

C-15A ROOFING CONTRACTOR

SCOPE OF WORK

The installation, application, alteration and repair of watertight and weatherproof material used on roofs, such as asphalt, pitch, tar, felt, flax, shakes, shingles, aluminum, tile, slate and urethane, but not the installation of siding or devices, such as stripping, for the internal control of the effects of weather.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 50 | 38 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|-----------------------------|------------|
| Safety | 5 |
| Roofing Substrates | 7 |
| Steep Roofing | 17 |
| Roofing Repairs | 4 |
| Elastomeric Roofing | 6 |
| Built-up Bituminous Roofing | 7 |
| Sheet Metal and Flashing | 2 |
| Photovoltaic Systems | 2 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *International Building Code*, 2018, International Code Council, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795, www.iccsafe.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *NRCA Roofing Manual: Steep Slope Roof Systems*, 2017, The National Roofing Contractors Association, (847) 299-9070, www.nrca.net
- *NRCA Roofing Manual: Metal Panel and SPF Roof Systems*, 2016, The National Roofing Contractors Association, (847) 299-9070, www.nrca.net
- *NRCA Roofing Manual: Membrane Roofing Systems*, 2019, The National Roofing Contractors Association, (847) 299-9070, 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.psonlinestore.com (See order form at the end of the Candidate Information Bulletin.)
- *Roofing Construction and Estimating*, Daniel Atcheson, 1995, Craftsman Book Company, 6085 Corte de Cedro, Carlsbad, CA 92009, (800) 829-8123, www.craftsman-book.com
- *Guidelines for Roof-Mounted Photovoltaic System Installations*, 2009, The National Roofing Contractors Association, (847) 299-9070, www.nrca.net
- *Carpentry and Building Construction*, 2010 (Student Edition), John L. Feirer and Mark D. Feirer, McGraw-Hill, www.mheducation.com

C-17 LATHING AND PLASTERING

SCOPE OF WORK

The selection and application of wood and metal lath and any other material or product manufactured to provide key or suction bases for the support of plaster coatings, including channel iron for the support of fireproof lath and solid plaster partitions, but does not include any plastering or erecting of a wall, ceiling or soffit to which the bases are applied, the coating of surfaces with a plaster, made of a mixture of such materials as sand, cement, quicklime, hydrated lime and water, and the installation of lath or other base for the plaster, the installation and coating of gypsum wallboard and sheathing, including the installation of a system of suspended ceilings made of gypsum wallboard, the installation of wood, mineral, fiber and other types of acoustical tile by the use of adhesives or other acceptable means, including the preparation of the surface for the installation, the application to surfaces, whether by manual or mechanical means, of coatings made of stucco and cement, including the preparation of the surfaces and the provision of a base,

including fireproof lath, for the coatings, and the fireproofing of structural members, the erection and installation of studs made of sheet metal for the framing of ceilings and nonstructural partitioning walls.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 45 | 32 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------|------------|
| Safety | 5 |
| Surface Preparation | 11 |
| Drywall | 5 |
| Application | 10 |
| Base and Finish Coat | 9 |
| Sheet Metal | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is CLOSED BOOK.

The following reference materials are not allowed in the examination center:

- *Plastering Skills* By F. Van Den Branden, T. L. Hartsell, 1984, American Technical Publishers, 1115 W 175th St, Homewood, IL 60430
- *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 (See order form at the end of the Candidate Information Bulletin.)
- *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

C-17C DRYWALL

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 20 | 14 | 1 Hour |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------|------------|
| Installation | 6 |
| Taping and Finishing | 6 |

| | |
|--------------------------------------|---|
| Materials | 4 |
| Special Applications and Accessories | 4 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

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

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
- *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>

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

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

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
- *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>

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

C-18 MASONRY CONTRACTOR

SCOPE OF WORK

The board will grant to qualified applicants a license in the specialty of masonry. The board designates such a license as a “classification C-18” license. A person who holds a classification C-18 license may select, cut and lay brick, other baked clay products, rough cut and dressed stone, artificial stone, precast blocks and structural glass brick or block at random or in courses, with or without mortar. He may not apply tile to existing surfaces.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 50 | 35 | 2 Hours |

C-17F STUDS OF SHEET METAL

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 20 | 14 | 1 Hour |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------------|------------|
| Code Requirements | 4 |
| Metal Framing Installation | 16 |

CONTENT OUTLINE

| Subject Area | # of Items |
|-------------------|------------|
| Safety | 5 |
| Concrete Block | 20 |
| Brick | 11 |
| Specialty Masonry | 6 |
| Mortar and Grout | 8 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *International Building Code*, 2018, International Code Council, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795, www.iccsafe.org
- *ACI 530/530.1-11 or ACI 530/530.1-13 (2011 or 2013): Building Code Requirements and Specification for Masonry Structures and Companion Commentaries*, American Concrete Institute, (248) 848-3700, www.concrete.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *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 (See order form at the end of the Candidate Information Bulletin.)
- *Modern Masonry - Brick, Block, Stone*, Clois E. Kicklighter, 8th edition (2015). The Goodheart-Willcox Company, (800) 323-0440, www.g-w.com.

C-20 TILING CONTRACTOR

SCOPE OF WORK

Surface preparation and application of stone, ceramic or similar materials.

| # of Questions | % Required to Pass | Time Allowed |
|----------------|--------------------|--------------|
| 40 | 28 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------------|------------|
| Surface Preparation | 12 |
| Installation and Adhesives | 22 |
| Grout and Finishing | 6 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is CLOSED BOOK.

The following reference materials are not allowed in the examination center:

- *Setting Tile*, 1995, John Byrne, The Taunton Press 63 South Main St., P.O. Box 5506, Newtown, CT 06470-5506 2034268171 2034263434
- *Builders Guide to Floors*, Peter Fleming, 1997, McGraw-Hill, (800) 262-4729, www.books.mcgraw-hill.com
- 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/Craft Training for the Tile Professional - Tub Surrounds](https://webstore.ansi.org/Craft%20Training%20for%20the%20Tile%20Professional%20-%20Tub%20Surrounds), National Tile Contractors Association P.O. Box 13629, Jackson, Mississippi 39236 601-939-2071 601-932-6117

C-21 REFRIGERATION AND AIR CONDITIONING CONTRACTOR

SCOPE OF WORK

The construction, erection and installation of devices, machinery and units for the control of air temperatures below 50°F in refrigerators, refrigerated rooms and insulated spaces, and installation of any related insulation, ducts, blowers, registers, controls over humidity and thermostatic controls, lines for supplying natural gas from the unit to the point of connection in the existing line for natural gas at the meter or at any point thereafter, electrical service from the unit's device to protect against excessive current to the main electrical panel, but not the installation of other gas or electric services for the devices, machinery or units, the installation, repair, service and maintenance of equipment, devices, machinery, units and related ductwork which use

evaporation, refrigeration, boilers or combustion for the control of air temperatures in structures where people live, work or assemble or animals are kept, the selection, cutting, shaping, fabrication and installation of sheet metal in such forms as cornices, flashings, gutters, leaders, downspouts for rainwater, pans, kitchen equipment, ducts, louvers, patented chimneys and metal flues, the repair and replacement of any parts of existing units or systems of air-conditioning and refrigeration, including the compressors, motors, relays, coils, heat exchangers and other appurtenances and equipment, but not the replacement of complete condenser assemblies on remote systems, air handlers or any work that may alter the design of an existing system, the installation of the collectors, piping, storage and other equipment used in the conversion of solar energy to energy used for the control of air temperatures, the installation of the chiller, piping, pumps, storage tanks, coils, cooling tower and other equipment used in the production and use of chilled water for the control of temperatures, the fabrication, installation, repair and removal of pipes, pumps, valves and other equipment used in the transfer of hot water for the control of temperatures.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 85 | 60 | 3 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|--------------------------------------|------------|
| Piping | 6 |
| Insulation | 1 |
| Hangers and Supports | 3 |
| Sound, Vibration and Seismic Control | 1 |
| Heating and Cooling Principles | 3 |
| Refrigerants and Refrigeration | 7 |
| Load Calculations | 6 |
| Testing, Adjusting and Balancing | 3 |
| Controls | 5 |
| Machine Room | 1 |
| A/C and Heat Pump Equipment | 4 |
| Furnaces and Heaters | 4 |
| Hydronics | 2 |
| Chimneys, Flues and Vents | 5 |
| Combustion Air | 2 |
| Fuel Systems | 10 |
| Ducts | 6 |
| Evaporative Cooling | 2 |
| Chillers | 3 |
| Solar | 4 |
| Ventilation and Exhausts | 3 |
| Safety | 4 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org
- *NFPA 54 - Standard for National Fuel Gas Code*, 2012, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *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_stand_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 (See order form at the end of the Candidate Information Bulletin.)
- *Modern Refrigeration and Air Conditioning*, 19th or 20th Edition, Althouse, Turnquist, & Bracciano, www.g-w.com
- *HVAC Duct Construction Standards, Metal and Flexible*, 2005, Sheet Metal and Air Conditioning Contractors' National Association, Inc., (703) 803-2980, www.smacna.org
- *Manual N - Commercial Load Calculation*, 5th Edition, 2008, ACCA, 2800 Shirlington Rd, Ste 300, Arlington, VA 22206, (703) 575-4477, www.acca.org
- *Solar Water and Pool Heating Design and Installation Manual*, 1997, Florida Solar Energy Center, 1670 Clearlake Road, Cocoa, FL 32922, (321) 638-1015, www.fsec.ucf.edu
- *Evaporative Air Conditioning Handbook*, 3rd Edition, 1997, John R. Watt, Will K. Brown, Prentice Hall PTR, Fairmont Press, 700 Indian Trail, Liburn, GA 30247.c-

C-21A REFRIGERATION CONTRACTOR

SCOPE OF WORK

The construction, erection and installation of devices, machinery and units for the control of air temperatures below 50°F in refrigerators, refrigerated rooms and insulated spaces, and installation of any related insulation, ducts, blowers, registers, controls over humidity and thermostatic controls, lines for supplying natural gas from the unit to the point of connection in the existing line for natural gas at the meter or at any point thereafter, electrical service from the unit's device to protect against excessive current to the main

electrical panel, but not the installation of other gas or electric services for the devices, machinery or units.

(866) 589-3088, www.psonlinestore.com (See order form at the end of the Candidate Information Bulletin.)

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 50 | 35 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|--------------------------------|------------|
| Refrigeration and Refrigerants | 17 |
| Piping and Tubing | 8 |
| Condensers and cooling towers | 4 |
| Controls, Valves and Wiring | 7 |
| Walk-ins/Box Construction | 2 |
| Ducts and Ventilation | 2 |
| Test and Inspection | 3 |
| Gas | 3 |
| Safety | 4 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Modern Refrigeration and Air Conditioning*, 19th or 20th Edition, Althouse, Turnquist, & Bracciano, 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,

C-21B AIR CONDITIONING CONTRACTOR

SCOPE OF WORK

(b) air-conditioning (subclassification C-21b): The installation, repair, service and maintenance of equipment, devices, machinery, units and related ductwork which use evaporation, refrigeration, boilers or combustion for the control of air temperatures in structures, including, without limitation, any humidity and thermostatic controls in connection with any such equipment, devices, machinery, units or ductwork.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 60 | 42 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|--------------------------------------|------------|
| Piping | 4 |
| Insulation | 1 |
| Hangers and Supports | 3 |
| Sound, Vibration and Seismic Control | 1 |
| Heating and Cooling Principles | 3 |
| Refrigerants and Refrigeration | 4 |
| Load Calculations | 6 |
| Testing, Adjusting and Balancing | 1 |
| Controls | 3 |
| A/C and Heat Pump Equipment | 4 |
| Furnaces and Heaters | 4 |
| Chimneys, Flues and Vents | 3 |
| Combustion Air | 2 |
| Fuel Systems | 8 |
| Ducts | 6 |
| Evaporative Cooling | 3 |
| Safety | 4 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org
- *NFPA 54 - Standard for National Fuel Gas Code*, 2012, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Modern Refrigeration and Air Conditioning*, 19th or 20th Edition, Althouse, Turnquist, & Bracciano, 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 (See order form at the end of the Candidate Information Bulletin.)
- *HVAC Duct Construction Standards, Metal and Flexible*, 2005, Sheet Metal and Air Conditioning Contractors' National Association, Inc., (703) 803-2980, www.smacna.org
- *Manual N - Commercial Load Calculation*, 5th Edition, 2008, ACCA, 2800 Shirlington Rd, Ste 300, Arlington, VA 22206, (703) 575-4477, www.acca.org
- *Evaporative Air Conditioning Handbook*, 3rd Edition, 1997, John R. Watt, Will K. Brown, Prentice Hall PTR, Fairmont Press, 700 Indian Trail, Liburn, GA 30247

C-21C SHEET METAL CONTRACTOR

SCOPE OF WORK

The fabrication and installation of sheet metal, including, without limitation, cornices, flashings, gutters, leaders, downspouts for rainwater, pans, food service equipment, ducts, louvers, patented chimneys, flues, and metal roof systems, but not the fabrication or installation of equipment which uses refrigeration as an integral part of the system.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 60 | 42 | 2.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|---|------------|
| Ducts | 20 |
| Chimneys, Flues, and Vents | 8 |
| Hoods, Ventilation, Equipment, and Food Service Equipment | 10 |
| Metal Roofing Systems, Flashing, and Architectural Metals | 10 |
| Gutters and Downspouts | 5 |
| Tools and Equipment | 4 |
| Safety | 3 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org
- *International Building Code*, 2018, International Code Council, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795, www.iccsafe.org.

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *HVAC Duct Construction Standards, Metal and Flexible*, 2005, 3rd edition, Sheet Metal and Air Conditioning Contractors' National Association, Inc., (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.americanstech.net
- *Architectural Sheet Metal Manual*, 2003, 6th Edition, Sheet Metal and Air Conditioning Contractors' National Association (SMACNA), (703) 803-2980, www.smacna.org
- *NRCA Roofing Manual: Steep Slope Roof Systems*, 2017, The National Roofing Contractors Association, (847) 299-9070, 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 (See order form at the end of the Candidate Information Bulletin.)

C-21D REFRIGERATION AND AIR CONDITIONING MAINTENANCE CONTRACTOR

SCOPE OF WORK

The repair and replacement of any parts of existing units or systems of air-conditioning and refrigeration, including the compressors, motors, relays, coils, heat exchangers and other appurtenances and equipment, but not the replacement of complete condenser assemblies on remote systems, air handlers or any work that may alter the design of an existing system.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 60 | 42 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------------------|------------|
| Systems/Components | 20 |
| Metering Devices/Troubleshooting | 20 |
| Controls and Wiring | 10 |
| Chilled Water | 3 |
| Refrigerants | 3 |
| Walk-in Refrigerators | 1 |
| Safety | 3 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed. This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Troubleshooting and Servicing Modern Air Conditioning and Refrigeration Systems*, John Tomczyk, 2nd Edition, 1995, ESCO Press, (800) 726-9696, www.escoinst.com,
- *Modern Refrigeration and Air Conditioning*, 19th or 20th Edition, Althouse, Turnquist, & Bracciano, 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 (See order form at the end of the Candidate Information Bulletin.)

C-21E SOLAR AIR CONDITIONING CONTRACTOR

SCOPE OF WORK

The installation of the collectors, piping, storage and other equipment used in the conversion of solar energy to energy used for the control of air temperatures.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 45 | 32 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------------|------------|
| Piping | 10 |
| System Design | 15 |
| Pumps and Storage Systems | 5 |
| Collectors | 7 |
| System Valves and Controls | 3 |
| Safety | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials (IAPMO), available from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, (800) 786-4452, www.iccsafe.org.

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore,

candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *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 (See order form at the end of the Candidate Information Bulletin.)
- *Solar Water and Pool Heating Design and Installation Manual*, Florida Solar Energy Center, 1679 Clearlake Road, Cocoa, FL 32922-5703, (321) 638-1015, www.fsec.ucf.edu

C-21F CHILLED AND HOT WATER SYSTEMS

SCOPE OF WORK

The installation of boilers, chillers, coils, cooling towers, piping, pumps, storage tanks, valves and other equipment used in the production and transfer of water for the control of temperatures.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 50 | 35 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|-------------------------|------------|
| Piping | 15 |
| Water Cooling Equipment | 10 |
| Water Heating Equipment | 10 |
| Valves and Controls | 8 |
| Safety | 7 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials (IAPMO), available from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, (800) 786-4452, www.iccsafe.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 (See order form at the end of the Candidate Information Bulletin.)

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Modern Refrigeration and Air Conditioning*, 19th or 20th Edition, Althouse, Turnquist, & Bracciano, www.g-w.com
- *Low Pressure Boilers*, Frederick M. Steingress, Daryl R. Walker, 4th Edition, 2013, American Technical Publishers, Inc., (800) 323-3471, www.atplearning.com

C-21G INDUSTRIAL PIPING

SCOPE OF WORK

The fabrication, installation, repair and removal of pipes and equipment used for the transmission of water, steam, gas, chemicals, food and other substances for industrial use.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 50 | 37 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|-----------------------------|------------|
| Pipe Fitting | 5 |
| Piping Materials | 7 |
| Process Piping | 6 |
| Gas Piping | 6 |
| Water and Steam Piping | 5 |
| Refrigerant Piping | 5 |
| Hangers and Supports | 6 |
| Estimating and Plan Reading | 3 |
| Welding | 3 |
| Safety | 4 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials (IAPMO), available from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, (800) 786-4452, www.iccsafe.org
- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Modern Refrigeration and Air Conditioning*, 19th or 20th Edition, Althouse, Turnquist, & Bracciano, www.g-w.com
- *Mathematics for Plumbers and Pipefitters*, Lee Smith, 8th Edition, 2013, www.cengage.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 (See order form at the end of the Candidate Information Bulletin.)
- *Facility Piping Systems Handbook*, 3rd Edition, McGraw-Hill Publishing, Inc., PO Box 182604, Columbus, OH 43272, (800) 338-3987, books.mcgraw-hill.com
- *ASME B31.3-2004: Process Piping*, 2004, American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10065, (800) 843-2763, www.asme.org
- *Modern Welding*, 11th Edition, 2013, Goodheart-Willcox Company, Inc., 18604 West Creek Drive, Tinley Park, IL 60477-6243, www.g-w.com

C-23 DRILLING WELLS

SCOPE OF WORK

The board will grant to qualified applicants a license in the specialty of drilling wells and installing pumps, pressure tanks and storage tanks considered integral to water wells. The board designates such a license as a "classification C-23" license. A person who holds a classification C-23 license may install and repair water wells, pressure tanks, storage tanks and pumps by boring, drilling, excavating, casing, cementing, dewatering and cleaning to provide a supply of uncontaminated water.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 45 | 32 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|------------------------------|------------|
| General Regulations | 10 |
| Drilling and Boreholes | 5 |
| Casings and Screens | 6 |
| Grouting and Sealing | 6 |
| Contamination Prevention | 5 |
| Testing | 3 |
| Safety and General Knowledge | 4 |
| Pumps and Tanks | 6 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- Nevada Administrative Code 534: Underground Water and Wells

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *Water Well Driller's Beginning Training Manual* 3rd Edition, 1996, NFPA, 1 Batterymarch, Quincy, MA 02269, (480) 948-3363. https://my.ngwa.org/NC_Product?id=a185000000BYuaUAAT

- *Manual of Water Well Construction Practices*, 3rd Edition 2017 National Ground Water Association, 601 Dempsey Road, Westerville, OH 43081, (800) 551-7379, https://my.ngwa.org/NC_Product?id=a18500000BYucsAAD
- *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 (See order form at the end of the Candidate Information Bulletin.)

C-37 SOLAR CONTRACTOR

SCOPE OF WORK

A person who holds a classification C-37 license may design, fabricate and install systems for the collection of solar energy to heat and cool water, air and chemicals.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 45 | 32 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------------|------------|
| Piping | 10 |
| System Design | 15 |
| Pumps and Storage Systems | 5 |
| Collectors | 7 |
| System Valves and Controls | 3 |
| Safety | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose

or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *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 (See order form at the end of the Candidate Information Bulletin.)
- *Solar Water and Pool Heating Design and Installation Manual*, Florida Solar Energy Center, 1679 Clearlake Road, Cocoa, FL 32922-5703, (321) 638-1015, www.fsec.ucf.edu

C-37A SOLAR WATER HEATING CONTRACTOR

SCOPE OF WORK

The installation of systems for the collection of solar energy to heat water for potable uses, but not the installation of pipes or fixtures other than water heaters and storage tanks designed for the use of water so heated.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 45 | 32 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------------|------------|
| Piping | 10 |
| System Design | 15 |
| Pumps and Storage Systems | 5 |
| Collectors | 7 |
| System Valves and Controls | 3 |
| Safety | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *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 (See order form at the end of the Candidate Information Bulletin.)
- *Solar Water and Pool Heating Design and Installation Manual*, Florida Solar Energy Center, 1679 Clearlake Road, Cocoa, FL 32922-5703, (321) 638-1015, www.fsec.ucf.edu

C-37B SOLAR SPACE HEATING

SCOPE OF WORK

The installation of systems for the collection of solar energy to heat water or air which is in turn used to heat structures which house persons, animals or inanimate objects including storage, piping and heat exchangers, but excluding equipment for pools.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 45 | 32 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------------|------------|
| Piping | 10 |
| System Design | 15 |
| Pumps and Storage Systems | 5 |
| Collectors | 7 |
| System Valves and Controls | 3 |
| Safety | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become

available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *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 (See order form at the end of the Candidate Information Bulletin.)
- *Solar Water and Pool Heating Design and Installation Manual*, Florida Solar Energy Center, 1679 Clearlake Road, Cocoa, FL 32922-5703, (321) 638-1015, www.fsec.ucf.edu

C-37C SOLAR AIR CONDITIONING CONTRACTOR

SCOPE OF WORK

The installation of the collectors, piping, storage and other equipment used in the conversion of solar energy to energy used for the control of air temperatures.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 45 | 32 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------------|------------|
| Piping | 10 |
| System Design | 15 |
| Pumps and Storage Systems | 5 |
| Collectors | 7 |
| System Valves and Controls | 3 |
| Safety | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *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 (See order form at the end of the Candidate Information Bulletin.)
- *Solar Water and Pool Heating Design and Installation Manual*, Florida Solar Energy Center, 1679 Clearlake Road, Cocoa, FL 32922-5703, (321) 638-1015, www.fsec.ucf.edu

C-37D SOLAR POOL HEATING CONTRACTOR

SCOPE OF WORK

The installation of the collectors, piping and heat exchangers used to heat swimming pools and spas with solar energy, but not the plumbing of swimming pools or the installation of their equipment.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 45 | 32 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|----------------------------|------------|
| Piping | 10 |
| System Design | 15 |
| Pumps and Storage Systems | 5 |
| Collectors | 7 |
| System Valves and Controls | 3 |
| Safety | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *Uniform Plumbing Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *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 (See order form at the end of the Candidate Information Bulletin.)
- *Solar Water and Pool Heating Design and Installation Manual*, Florida Solar Energy Center, 1679 Clearlake Road, Cocoa, FL 32922-5703, (321) 638-1015, www.fsec.ucf.edu

C-38 GAS EQUIPMENT CONTRACTOR

SCOPE OF WORK

The installation of pipes from the source of supply of liquefied petroleum or natural gas into a building or other structure and the installation of the related vents, the installation of appliances and equipment requiring connection to a supply of liquefied petroleum or natural gas, the fabrication and installation of systems for the heating of air with liquefied petroleum or natural gas and for circulating the air.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 50 | 35 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|--------------------------|------------|
| Natural Gas Piping | 12 |
| LP Gas Piping | 12 |
| Chimneys Flues and Vents | 10 |
| Appliance Installation | 5 |
| Sizing and Estimating | 5 |
| Testing and Inspection | 3 |
| Combustion Air | 3 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- *Uniform Mechanical Code*, 2018, International Association of Plumbing and Mechanical Officials, IAPMO World Headquarters, 5001 E Philadelphia St, Ontario, CA 91761 USA, 800.85.IAPMO, www.iapmo.org
- *NFPA 58 - Standard for Liquid Petroleum Gas Code*, 2014, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *NFPA 54 - Standard for National Fuel Gas Code*, 2012, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

C-41 FIRE PROTECTION CONTRACTOR

SCOPE OF WORK

The fabrication, installation, alteration, repair and service of fire protection systems using water, including required pressure and storage tanks, fire pumps and drivers, sprinkler heads and nozzles, and all associated valves and piping. Included in this classification is control wiring, any required excavation, backfilling and grading, and piping to a water supply which is not on the premises but is adjacent to the property with the fire protection system, the fabrication, installation, repair and service of fire protection systems using foam, gas or dry chemicals, including pressurized storage tanks, valves, associated piping and sensing and control devices, the installation, alteration, repair and servicing of electrical sensors and alarms used to detect heat and smoke, including all appurtenances and related wiring.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 90 | 63 | 3 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|---|------------|
| Fire Sprinkler Systems | 20 |
| Fire Sprinkler - Wet and Dry Chemical Systems | 17 |
| Fire Sprinkler - Standpipe | 10 |
| Fire Prevention - Inspections, Testing, and Maintenance | 7 |
| Code Compliance | 3 |
| Fire Alarms | 23 |
| General Regulations | 10 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- *NFPA 13 - Standard for Installation of Sprinkler Systems*, 2007, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- *NFPA 14 - Standard for Installation of Standpipe and Hose Systems*, 2007, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- *NFPA 17 - Standard for Dry Chemical Extinguishing Systems*, 2009, National Fire Protection Assn, 1

Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

- **NFPA 72** - Standard for National Fire Alarm Code or National Fire Alarm Code Handbook, 2013, National Fire Protection Assn, 1 Batterymarch Park, Quincy, MA 02269, 800-344-3555, www.nfpa.org
- **NFPA 11** - Standard for Low-Expansion Foam, 2016, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- **NFPA 12** - Standard on Carbon Dioxide Extinguishing Systems, 2015, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- **NFPA 25** - Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems, 2008, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- **National Electrical Code or National Electrical Code Handbook**, 2017, Earley, Sheehan, Caloggero, National Fire Protection Assoc, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- **NV Fire Marshall Code, Chapter 477**

C-41A AUTOMATIC FIRE SPRINKLERS CONTRACTOR

SCOPE OF WORK

The fabrication, installation, alteration, repair and service of fire protection systems using water, including required pressure and storage tanks, fire pumps and drivers, sprinkler heads and nozzles, and all associated valves and piping. Included in this classification are control wiring, any required excavation, backfilling and grading, and piping to a water supply which is not on the premises but is adjacent to the property with the fire protection system.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 45 | 32 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|-------------------------------------|------------|
| Sprinkler Systems | 16 |
| Standpipe Systems | 16 |
| Inspection, Testing and Maintenance | 8 |
| General Regulations | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- **NFPA 13** - Standard for Installation of Sprinkler Systems, 2007, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- **NFPA 14** - Standard for Installation of Standpipe and Hose Systems, 2007, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- **NFPA 24** - Standard for the Installation of Private Fire Service Mains and Their Appurtenances, 2010, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- **NFPA 25** - Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems, 2008, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- **Nevada Fire Marshall Code Chapter 477**

C-41B FIXED FIRE EXTINGUISHING SYSTEMS CONTRACTOR

SCOPE OF WORK

The fabrication, installation, repair and service of fire protection systems using foam, gas or dry chemicals, including pressurized storage tanks, valves, associated piping and sensing and control devices.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 45 | 32 | 1.5 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|------------------------|------------|
| Dry Chemical Systems | 14 |
| Carbon Dioxide Systems | 12 |
| Foam Systems | 7 |

| | |
|---------------------|---|
| Clean Agent Systems | 7 |
| General Regulations | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- NFPA 11 - Standard for Low-Expansion Foam, 2016, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- NFPA 12 - Standard on Carbon Dioxide Extinguishing Systems, 2015, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- NFPA 17 - Standard for Dry Chemical Extinguishing Systems, 2009, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org
- NFPA 2001 - Standard on Clean Agent Fire Extinguishing Systems, 2012, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- NV Fire Marshall Code, Chapter 477

C-41C FIRE DETECTION CONTRACTOR

SCOPE OF WORK

The installation, alteration, repair and servicing of electrical sensors and alarms used to detect heat and smoke, including all appurtenances and related wiring.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 55 | 39 | 2 Hours |

CONTENT OUTLINE

| Subject Area | # of Items |
|------------------------------|------------|
| General Electrical Knowledge | 5 |
| Wiring | 8 |
| Grounding | 3 |
| Power Supply | 5 |
| Detectors | 15 |
| Alarms Notification | 14 |
| General Regulations | 5 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference materials are allowed in the examination center:

- National Electrical Code or National Electrical Code Handbook, 2017, Earley, Sheehan, Caloggero, National Fire Protection Assoc, (800) 344-3555, www.nfpa.org
- NFPA 72 - Standard for National Fire Alarm Code or National Fire Alarm Code Handbook, 2013, National Fire Protection Assn, 1 Batterymarch, Quincy, MA 02269, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- Certified Alarm Technicians Manual - Level 1, 2001, call 888-447-1689 or 972-807-6821 to order.
- Nevada Fire Marshall Code Chapter 477

C-42 CONSTRUCTING, ALTERING OR IMPROVING VIDEO SERVICE NETWORKS

SCOPE OF WORK

A person who holds a classification C-42 license may construct, alter or improve video service networks.

| # of Questions | Minimum Passing Score | Time Allowed |
|----------------|-----------------------|--------------|
| 35 | 25 | 1 Hour |

CONTENT OUTLINE

| Subject Area | # of Items |
|---------------|------------|
| NEC | 10 |
| NESC | 2 |
| Cable-General | 23 |

REFERENCE LIST

The reference material listed below was used to prepare the questions for this examination. The examination may also contain questions based on trade knowledge or general industry practices. **Except for Code books**, you can base your answers on later editions of references as they become available. For Code questions, the examinations will be based **only** on the edition of the Code book that is listed.

This examination is OPEN BOOK.

The following reference material is allowed in the examination center:

- *National Electrical Code or National Electrical Code Handbook*, 2017, Earley, Sheehan, Caloggero, National Fire Protection Assoc, (800) 344-3555, www.nfpa.org

Candidates are responsible for bringing their own references to the examination center. Reference materials may be highlighted, underlined, and/or indexed prior to the examination session. However, references may not be written in, prior to nor during the examination session. Any candidate caught writing or highlighting in the references during the examination will have the references confiscated and will be reported to the department. Furthermore, candidates are not permitted to bring in any additional papers (loose or attached) with their approved references. Any additional materials will be removed from the references and confiscated. References may be tabbed/indexed with permanent tabs only. Temporary tabs, such as Post-It notes, are not allowed and must be removed from the reference before the exam will begin.

The following reference materials are not allowed in the examination center:

- *National Electrical Safety Code*, 2012, Institute of Electrical Electronics Engineers, Inc., 345 East 47th Street, New York, NY 10017-2394
- *Data, Voice, and Video Cabling*, Jim Hayes, Paul Rosenberg, 2009, 3rd Edition, Delmar Cengage Learning, (800) 347-7707, www.delmarlearning.com



To place an order for one or more of the following items listed, you may:

- Order online at www.psionlinestore.com
- Call the PSI Online store toll-free at (866) 589-3088

Note: prices are available online at www.psionlinestore.com

| | |
|--------------------------|---|
| <input type="checkbox"/> | 29 CFR Part 1926 Selections |
| <input type="checkbox"/> | Carpentry and Building Construction |
| <input type="checkbox"/> | Fire Alarm Signaling Systems |
| <input type="checkbox"/> | HVAC Pump Handbook |
| <input type="checkbox"/> | Nevada Construction Business and Law Manual |
| <input type="checkbox"/> | Landscaping Principles and Practices |
| <input type="checkbox"/> | Lineman's and Cableman's Handbook |
| <input type="checkbox"/> | Mathematics for Plumbers and Pipefitters |
| <input type="checkbox"/> | Modern Hydronic Heating for Residential and Light Commercial Buildings |
| <input type="checkbox"/> | Modern Masonry - Brick, Block, Stone |
| <input type="checkbox"/> | Modern Refrigeration and Air Conditioning |
| <input type="checkbox"/> | Modern Welding |
| <input type="checkbox"/> | NFPA 13 - Standard for Installation of Sprinkler Systems |
| <input type="checkbox"/> | NFPA 17 - Standard for Dry Chemical Extinguishing Systems |
| <input type="checkbox"/> | NFPA 25 - Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems |
| <input type="checkbox"/> | NFPA 54 - Standard for National Fuel Gas Code |
| <input type="checkbox"/> | NFPA 58 - Standard for Liquid Petroleum Gas Code |
| <input type="checkbox"/> | NFPA 72 - Standard for National Fire Alarm Code |

Please note: Inventory and pricing subject to change without notice.