Certified Lead Carpenter (CLC) Program Manual

NARI
Remodeling Done Right.™

Welcome, and congratulations on taking the first step toward earning the Certified Lead Carpenter (CLC) designation. The National Association of the Remodeling Industry (NARI) has established the Certified Lead Carpenter (CLC) designation to promote the highest standards of carpentry remodeling through credentialing of remodeling professionals. By choosing to review this handbook, you have taken the first step toward joining those who will distinguish themselves by earning the CLC designation.

This handbook summarizes the key aspects of the CLC program, and is intended to help you understand the process of certification and recertification when the time comes. The handbook is a useful reference as you:

- Make your decision whether to pursue the CLC
- Develop your course of study to meet the eligibility requirements of the CLC
- Complete the CLC application
- Seek to maintain (or provide yourself another opportunity to earn) the CLC

The CLC program continues to evolve and be refined as residential carpentry is applied to the remodeling industry. No single printed document can address every potential question, process, policy detail, or future change. No single printed document can address every potential question, process, policy detail, or future change. You are encouraged to use this handbook as a supplement to the program information provided on the CLC program web site as well as information provided by NARI's certification staff, who may be contacted at 847 298-9200 or certification@nari.org.

NARI Certification Board

The NARI Certification Board, the certifying agency of the National Association of the Remodeling Industry, is responsible for the governance of the CLC program, and all policies and standards related to the CLC designation. NARI staff administers this program by implementing the Board's policies. This structure allows the NARI Certification Board to maintain integrity concerning policy matters related to certification.

The NARI Certification Board issues certifications to individuals who successfully meet its standards. These individuals may present themselves to the public as Certified Lead Carpenters.

What is the purpose of the CLC designation?

The purpose of the CLC certification program is to:

- Establish the body of knowledge for Certified Lead Carpenters
- Assess the level of knowledge demonstrated by Certified Lead Carpenters in a valid and reliable manner
- Encourage professional growth in the field of lead carpentry
- Formally recognize individuals who meet the requirements set by the NARI Certification Board

The NARI Certification Board, with assistance and advice from professionals in relevant fields, has developed a credential that will recognize an accepted level of expertise in the profession with the goal of improving professional standards in lead carpentry; however, no certification program can guarantee professional competence. In addition, given the frequent changes in recommended practices and technology, the NARI Certification Board cannot warrant that the test materials will at all times reflect the most current state of the art. The NARI Certification Board welcomes constructive comments and suggestions from the public and profession.

What are the benefits of certification?

The benefits of certification for lead carpenters include: • Verification of your knowledge by an independent organization – a way to prove that you have the knowledge needed for the job • Professional growth and development • Enhanced job opportunities	The benefits of certification for employers include: • Increased productivity • Less training time needed to bring employees "up to speed" • Competitive advantage in promoting services to clients

Certification Renewal

Upon passing the examination and becoming certified the certified professional must maintain and renew the certification on an annual basis (within 12 months of the initial certification date or current expiration date). The annual renewal fee is $65 ($130 if your company is NARI member).

In addition to submitting a renewal application along with the renewal fee annually, the certified professional must also submit 5 hours of remodeling related continuing education which has taken place within the preceding 12 months.

PREPARING FOR THE TEST

Who can take the test?

You are eligible to sit for the CLC exam if you meet the following requirements:

- Have a minimum of five years continuous practice in the remodeling industry, with at least two of those years as a lead carpenter. A lead carpenter is:
    - defined as a remodeling professional who is involved in tasks and has responsibilities beyond the technical production aspects of a project;
    - responsible for customer contact and communication;
    - responsible for supervision of subcontractors and employees, managing the job site, and
    - responsible for scheduling, and safety issues.
- Adhere to NARI's Standards of Practice and Code of Ethics
- Successfully complete a comprehensive application that details your background and experience
- Successfully complete a written examination on business, construction, and remodeling practices; communication and jobsite management; and jobsite and tool safety
- Submit all required application materials and fees

*All experience and coursework must be completed at the time the application is submitted.

How much does it cost?

The certification fee of $400 for NARI members and $600 for non-members must accompany the application. The CLC application documents your qualifying experience, technical competence, professional development activities, and attestation to uphold NARI's Code of Ethics. All experience and coursework must be completed at the time the application is submitted. Complete applications should be submitted three months in advance of the exam date.

Once the application has been approved, all fees are non-refundable. Fees are non-transferrable.

How do I apply?

You must complete the Certified Lead Carpenter application. You should allow at least ten (10) days for delivery if using first class mail. Applications received less than 30 days before your scheduled exam will be rejected.

When your application has been reviewed and accepted, you will receive acknowledgement of eligibility and your name will be entered on the roster of eligible candidates. Successful applicants are qualified to take the exam once during the next 24 months. If unsuccessful on the first attempt, subsequent examinations taken within this 2-year window are subject to a retest fee of $50 per test. You may re-take the exam 2 times in the 24 month period. If you are not successful at passing the exam within two (2) years of your initial application date and wish to sit for the exam, you will be required to resubmit an updated application and to pay the required certification fee in effect at the time of reapplication.

When and where is the test given?

Exams are delivered entirely online. A live proctor will connect with you via your telephone camera and will observe you for the entire duration of the exam.

Exam periods are scheduled at regular intervals throughout any particular year. NARI offers three exam periods per year. You can review the most current year's exam period schedule here.

How are special testing arrangements made?

The NARI Certification Board will make reasonable efforts to accommodate eligible candidates who require special arrangements to take the exam. Candidates who request special accommodations must make their request in writing at least 60 days in advance of the test date. Documentation should be in the form of a letter on the official letterhead of a licensed or certified professional qualified to diagnose and treat special conditions. A description of the special accommodation(s) requested should be included. Your request, with the supporting documentation, will be reviewed to determine if the accommodation will be granted. If approved, you and your exam proctor will be notified. The special accommodations and auxiliary aids and

services must not present an undue burden to the NARI Certification Board and must not fundamentally alter the measurement of the knowledge the exam is intended to test.

What is the format for the test?

The exam is offered in a single, three-hour session. The test will have 180 multiple-choice questions. Each question will have four options or choices, only one of which is the correct or best answer. You are to select the **correct** or **best** answer from these options.

What do I need to know for the test?

The exam content outline organizes the knowledge and tasks deemed essential to lead carpentry into 20 areas.

The CLC exam content outline

The composition of the exam is guided by research, on the job tasks performed, and knowledge needed by lead carpenters. On the following pages list the exam sections and the approximate percentage of the exam devoted to each one.

1. Business Management 6 to 8%

1. Define common business terms.
2. Define the scope of the Lead Carpenter work.
3. Describe what constitutes the project's selling price.
4. Describe the Lead Carpenter's impact on project profits.
5. Describe the factors that control the cost of workers' comp insurance and the Lead Carpenter's role in keeping these rates low.
6. Describe the Lead Carpenter concept and its benefits.
7. Describe the options available to the Lead Carpenter to obtain additional labor on the project.
8. Describe the use of technology to assist the Lead Carpenter.

2. Plans & Specs 10 to 12%

1. Define the various components of the CSI specification program.
2. Define basic terms associated with plans and remodeling specifications. 1
3. Describe a process used to verify the integrity of a set of working drawings.
4. Describe and define the symbols and lines used on remodeling plans.

3. Codes & Law 3 to 5%

1. Describe the purpose of the building code.
2. Describe how building codes may vary from one jurisdiction to another.
3. Understand the requirements for obtaining a building permit.
4. Describe the guidelines for working with building inspectors.

4. Pre-Construction 5 to 7%

1. Describe the information that should be gathered in relation to the homeowner.
2. Describe the information that should be gathered in relation to the architect, if used.
3. Describe the information that should be gathered in relation to the jobsite.
4. Describe why a thorough inspection of the jobsite prior to starting is important to your company.
5. Conduct an evaluation of project plan to project specifications noting any differences.
6. Describe the purpose and content of the project file.
7. Describe the process of creating a materials list.

8. Describe the role the materials list plays in project scheduling.
9. Describe the purpose of the preconstruction conference.
10. List the people that should attend the preconstruction conference.
11. Describe the guidelines that are used when conducting the preconstruction conference.

5. Jobsite Safety 10 to 12%

1. List the responsibilities regarding safety of the CLC.
2. Define the primary safety responsibility of the CLC.
3. Define the terms associated with jobsite safety.
4. Understand and apply OSHA safety standards.
5. Describe the requirement for a First Aid Kit on the jobsite.
6. Describe the four classes of fire and the primary method of control of each class.
7. List the minimum fire extinguisher requirements on a jobsite.
8. Describe the OSHA requirements when storing materials within buildings which are under construction.
9. Describe foot protection requirements required while on the jobsite.
10. List the work clothing precautions that should be observed while on the jobsite.
11. List when eye protection must be worn while on the jobsite.
12. Describe and explain the specific safety rules associated with hand tools.
13. Describe and explain the specific safety rules associated with power tools.
14. Describe and explain electrical safety as it relates to tools and jobsite safety.
15. Describe the hazards presented by asbestos on a remodel project.
16. Describe the specific precautions that must be taken if asbestos may be disturbed as part of the remodel project.
17. Describe the hazards presented by lead based paint on a remodel project.
18. Describe the requirements imposed by EPA's Renovation, Repair, and Painting (RRP) rule.
19. Describe the specific precautions that must be taken if lead based paint may be disturbed as part of the remodel project.
20. Describe and interpret a Safety Data Sheet (SDS).
21. List methods to prevent trips or falls from occurring on the jobsite.
22. List the hazardous chemicals that may be found on a remodel project and the precautions associated with each.
23. List the leading cause of injuries on construction jobs.
24. Describe the ladder and scaffold safety precautions.

6. Communication & People Skills 8 to 10%

1. List the four elements of effective on-the-job communications.
2. Describe the characteristics of the different levels of communication.
3. Describe the various components that make up non-verbal communications.
4. List the typical roadblocks to good listening skills.
5. Describe the keys to effective listening.

7. Supervision 3 to 5%

1. Describe the basic guidelines for supervising others on the jobsite.
2. Describe the cautions to be exercised when teaching or correcting an individual.
3. List the major personnel issues that jobsite supervisors face daily.
4. Describe the basic guidelines for working with a sub-contractor.
5. List and describe the five keys to success for working with crews.

8. Job Site Management 3 to 5%

1. Describe the organization process as it relates to managing the jobsite.
2. Describe the paperwork required to be kept on the jobsite.
3. Describe the basics of project scheduling.
4. Compute the impact (cost) of a project going over the scheduled completion date.
5. Describe the types of inspections that a typical remodeling project requires.
6. Describe the purpose and processing of change orders.
7. Describe the purpose and use of the punch list.
8. Describe the zero punchlist concept and implementation procedures (new)
9. Describe the Key components that indicate a job as 100% closed (done done) (new)

9. Construction Trades 40% to 45%

A Carpentry 10 to 15%

1. Rough

1. Define the terms associated with carpentry.
2. Describe the purpose of and support methods of beams and girders.
3. Describe the proper framing methods of walls (load and non-load bearing).
4. Identify the components of roof and ceiling systems
5. Describe the purpose, proper spacing, and sizing of floor joists.
6. Describe the various special floor systems including the parallel-chord truss.
7. Describe the use of panelized floor systems including precautions when making modifications.

2. **Finish Carpentry**
    1. Order the amount of material required to trim and mold a remodeling project
    2. Evaluate space for cabinet installation, walls plumb and square and floor level
    3. Describe the methods used to install wood trim around windows and doors
    4. Describe the various methods of constructing stairs.
    5. Calculate the number and size of risers and treads (less nosing) for a given stair run.
    6. Describe the methods used to install baseboard and base shoe molding
    7. Describe the methods used to Install crown molding

3. Windows and Doors 3 to 5%

1. Define terms associated with windows and doors.
2. Describe the two methods of replacing windows.
3. Describe the NFRC window label components.

B Concrete & Masonry 3 to 5%

1. Define the terms associated with concrete and masonry.
2. Describe and identify damage caused to brick by moisture.
3. Describe methods that can be used to eliminate moisture damage to brick.
4. Describe the stress that can damage masonry.
5. Describe the effects of soil expansion and settlement.
6. Describe the cure process of concrete.
7. Describe the purpose and location of control and expansion joints.
8. Describe and identify the various defects commonly found in concrete and masonry.
9. Estimate the amount of concrete required for slabs, walks, drive, and footings.
10. Describe the precautions that should be observed when placing, finishing, and curing concrete in cold weather. 1

C. Roofing & Siding 3 to 5%

1. Define terms associated with roofing and siding.
2. Describe the various roofing systems in use today.
3. Describe the various flashing types used on roofing and the specifications of each.

D. Insulation 3 to 5%

1. Define terms associated with insulation evaluation and installation
2. Identify the boundaries of the thermal envelope.
3. Identify the architectural symbols associated with insulation.

4. Describe the sources of moisture in a residence.
5. Identify the methods of moisture and vapor transfer.
6. Describe the use of caulk and weather strips to stop or attenuate air leakage.
7. Identify common sources of heat loss in a modern home.
8. Describe moisture control as it relates to insulation installation
9. Describe the various construction techniques that can be employed to reduce noise transfer within the residence.

E. Electrical Systems 3 to 5%

1. Define terms associated with residential electrical systems.
2. Identify the architectural symbols associated with electrical systems.
3. Describe the code requirements for junction and distribution boxes in terms of location and accessibility.
4. Describe the precaution associated with recessed lighting fixtures.
5. Describe the locations of receptacles as described in the NEC code.
6. Describe the required locations for Ground Fault Circuit Interrupter (GFCI) protected outlets.
7. Describe the required locations for Arc Fault Circuit Interrupter (AFCI) protected outlets.
8. Describe the various types of wiring material used in residential wiring.
9. Describe residential grounding requirements.

F. Plumbing 3 to 5%

1. Define terms associated with plumbing systems.
2. Identify the three systems associated with residential plumbing.
3. Describe the basic concepts of planning plumbing systems.
4. List the typical rough-in dimensions for various plumbing fixtures.

G. Mechanical Systems 3 to 5%

1. Define terms associated with mechanical (HVAC) systems.
2. Demonstrate a basic understanding of indoor air quality and the need for adequate ventilation.
3. Describe back-drafting and what hazards it presents to the occupants.
4. Describe the method used for testing for and correcting back-draft problems.
5. Describe the issues related to forced air heating and cooling systems.
6. Describe the issues related to heat pump heating and cooling systems.
7. Describe Mini Split systems and their use

H. Interior Finishes 3 to 5%

1. Define terms associated with plaster application and repair.
2. Define terms associated with dry wall application and repair.
3. Identify and describe the advantages of the various types of dry wall available.
4. Describe the installation procedures used for dry wall.
5. Describe the two basic types of paint.
6. Describe how to clean up for different types of paint varies.
7. Describe how to properly prepare a surface for paint.
8. Describe the type and application process for hardwood floor finishing.

10. Quality Control 1 to 2%

1. Describe quality as it relates to the remodeling project. 2

The CLC Authoritative Literature

The following is the CLC Authoritative Literature, a list of references that may be helpful in review for the test. The list is intended for use as a study aid only. The NARI Certification Board does not intend the list to imply endorsement of these specific references, nor are the test questions necessarily limited to these sources. The NARI Certification Board reviews the Authoritative Literature on a biannual basis January 2012.

Certified Lead Carpenter (CLC) References

1. Modern Carpentry, current edition by Willis Wagner, Goodheart-Willcox, Tinley Park, IL
2. The Lead Carpenter Handbook, by Timothy Faller, Builderburg Group, Inc., 1998
3. International Residential Code for One- and Two-Family Dwellings *(IRC) current* Edition
4. Construction Print Reading, by Leonard Koel, Delmar, Albany, NY
5. Renovation 3nd Edition, by Michael W. Litchfield, Sterling Publishing Co. New York.
6. Principles and Practices of Light Construction, 6 Ed. Ronald C. Smith, Ted L. Honkala, Prentice-Hall, Englewood Cliffs, N.J., 2004
7. Masonry and Concrete Construction, by Ken Nolan, Craftsman Book Company; Carlsbad, California
8. Bricklaying-Brick and Block Masonry, by the Brick Institute of America, Reston, VA 2003 ASTM Standard E2112-01, Window installations procedures

How do I prepare for the test?

You may choose to study on your own or you may decide to join a study group at your local chapter to gain a better understanding of one or more content areas. Find a study group, contact your chapter representative or visit http://www.nari.org/certify/index.asp for a current list of virtual study group/course information.

When planning your studying, you should also think about what percentage of the test questions will cover each major content area. Decide which resources will better help you prepare for the test. The references listed in the authoritative literature above may be helpful when you are reviewing the content areas included on the test.

TAKING THE TEST

What are the requirements during the test?

- You may take your exam at any time during the testing period.
- Assure you have a stable internet connection to avoid interruption of your online exam. Assure you will be undisturbed for the duration of the exam.
- Assure you have the device on which you plan to take your exam prepared and plugged into a charger.
- Assure you have a smartphone with a camera available to allow the proctor access to your camera to observe you for the duration of the exam.
- Assure your cell phone can be placed in a location which will allow the proctor to observe you and your workspace throughout the exam.
- Having your phone plugged in and charging is encouraged to avoid your device running out of battery and preventing the proctor from observing you as this will result in an invalid test.
- Have your ID ready to provide proof of identity to the proctor.
- This is a closed book exam. No materials other than blank scratch paper and pen or pencil are allowed during the exam.
- You may not copy exam questions onto blank scratch paper.

Before you take the exam, you will be asked to sign the following statement: “Due to the confidential nature of this test, I agree that I will not copy or retain test questions or transmit them in any form to any other person or organization.” If you do not sign this statement, you will be dismissed from the testing center or your test results may be invalidated. The theft or attempted theft of the test or copying or disclosure of test questions is punishable by law.

Sample Examination Questions

The CLC examination is a knowledge-based, paper-and-pencil examination consisting of 180 multiple-choice questions administered in a single four-hour period. The following questions have been selected for inclusion in candidate materials as sample questions. While these sample questions are intended to give candidates a better sense of the CLC questions, the actual examination may include these and other similar types of questions in varying proportions. The answers to these sample questions are given on the last page of this handbook.

1. The lead carpenter arrives at the jobsite without the company step ladder even though it's needed. The jobsite is one hour away from the office. What should the lead carpenter do?
   - A. Cancel the work task
   - B. Ask permission to use the client's ladder
   - C. Borrow the neighbor's ladder
   - D. Return to the company location and pick up the ladder

2. When using panels for roof sheathing a gap of _____ should be left at the sides.
   - A. 1/2"
   - B. 3/16"
   - C. 3/8"
   - D. 1/4"

3. Construction adhesives used to bond sub-flooring to the joists _____.
   - A. stiffen the floor
   - B. reduce floor squeaks
   - C. require fewer fasteners
   - D. All of the above

4. The basic purpose of building codes is _____.
   - A. to provide for the health, safety, and general welfare of the occupants of the building
   - B. to see that construction work conforms to the common building standards of the community
   - C. to provide for the health, safety and general welfare of the occupants of the building and the community
   - D. to eliminate the hazards of construction work for both the occupants of the building and the construction workers

5. The most effective way to pass building code inspections is _____.
   A. to have your manager present
   B. to hire good, qualified subs
   C. to know the local codes
   D. to do good work

6. How many effective communication elements need to break down before we have a poor reception of a message or instructions?
   A. One
   B. Two
   C. Three
   D. All four

7. In working with crews, which one of the following is not a key to success?
   A. Empathy
   B. Your appearance
   C. The hourly rate your company pays
   D. The consistency you show to them

8. Concrete with a slump of four inches or less will _____.
   A. minimize bleed water
   B. take longer to set
   C. promote dusting
   D. fail most tests

9. What is the maximum spacing of outlets, measured along the floor line, in any living space?
   A. 6'
   B. 9'
   C. 12'
   D. 15'

10. Electrical outlets may NOT be installed above electric heating baseboard units _____.
   A. if they are on the same circuit as the baseboard

B. if they are on a different circuit from the baseboard
C. unless they are needed to meet outlet spacing requirements
D. under any circumstances

11. Regarding site inspection and evaluation of existing construction, which statement is most correct?
A. One is included in the other.
B. Two similar but different things.
C. Always done at the same time.
D. Two different activities.

12. If a panel with an R-value of 5 lets 1000 BTUs pass through per hour, then under the same conditions, a panel with an R-value of 10 will let how many BTUs pass through?
A. 500
B. 1,000
C. 2,000
D. 2,500

13. The "dew point" is the temperature at which the air is completely saturated with moisture. Any lower temperature will cause what to occur?
A. Ice to form
B. Condensation to form
C. Fog to form
D. Nothing will happen

14. Warm moist air always moves _____.
A. in circles counter-clockwise
B. from its source to the dew point
C. from cold to hot
D. from hot to cold

15. When your project goes over schedule by one day, what does your company lose that cannot be recovered?
    A. The cost of materials used.
    B. One day's planned dollar amounts of overhead and profit.
    C. The cost of subcontractors' work.
    D. The cost of workers' compensation.

16. When installing a gas log in a fireplace designed for solid fuel _____.
    A. the flue may be blocked
    B. the damper must be operable
    C. it is necessary to remove or block open the damper
    D. the flue liner must be replaced

17. If your manager has already held a pre-construction conference with the client, the architect and the sales person/estimator, the best thing for a Lead Carpenter to do is_____.
    A. get the facts and input from your manager and move on with the work
    B. check with the homeowner as to what was said
    C. ask your manager for a copy of the conference checklist that was used
    D. hold your own conference

18. The reason that jack studs must fit perfectly under a header is to ensure that _____.
    A. it looks professional
    B. lumber is not wasted
    C. doors or windows operate properly
    D. shims can be installed properly

19. Where roofs meet perpendicular walls, _____ should be installed to protect the intersection.
    A. continuous metal flashing
    B. metal step flashing
    C. continuous fabric flashing
    D. Any of the above

20. Which of the following will a ground-fault circuit interrupter provide protection against _____.
    A. overheating of tools or equipment
    B. destruction of insulation on wiring
    C. line-to-line contact hazards
    D. the ground fault

21. Two members joined at an angle, commonly 45°, is a _____.
    A. Crown joint
    B. Lintel
    C. Meeting style
    D. Miter joint

22. Properly motivating a crew can best be done around which of these concepts?
    A. Competition
    B. Making them respect you first
    C. With discipline
    D. Fostering a team attitude

23. Although a Lead Carpenter doesn't have to know everything there is to know about each sub's trade, which of the following does s/he need to know?
    A. Every detail of the sub's contract.
    B. Thorough knowledge of each trade's specs.
    C. What needs to be done before each sub can begin their work?
    D. The codes pertaining to each sub's work.
    E. All of the above

What information will I receive about my score?

The test is designed to distinguish those who have the basic level of knowledge from those who do not. There is no evidence that someone who receives a very high score on the test will perform significantly better on the job than someone whose score falls exactly at the passing point. Therefore, if you pass the test, you will be informed only that you have successfully completed the credentialing process. You will NOT be notified of your actual score. Your completed exam will not be returned to you for review or comment.

If you do not achieve a passing score, you will be notified of that fact and will receive a report showing your pass/fail performance in each content area. This information is provided to assist you in deciding whether to retake the test and how to plan your study efforts for future tests.

When will I receive my test results?

CLC test results will be e-mailed approximately four (4) weeks after the exam. To protect the confidentiality of your test score, no results will be given over the telephone. Results will not be released to any third party without your specific written permission. Forms may be requested from certification@nari.org. At no time will a completed exam be returned to the candidate for review or comment.

Request for hand scoring

If you do not achieve a passing score on the exam, you may ask that your test be re-scored by hand to verify the reported score. Your request must be in writing and must be accompanied by a payment in the amount of $50, made payable to NARI. Request for hand scoring can be honored for only 30 days after the distribution of the results.

Retaking the test

There is a limit of two times that you may apply for and re-take the test within two years of your initial application date. If you do not succeed in passing the test by the second anniversary of your initial application date you will be required to submit a new application form, fees, and meet all eligibility requirements in effect at the time of the new application. There is a $50 fee for exam retakes.

Appeals

Within 20 business days after announcement of the results of the CLC examination, unsuccessful candidates may file an appeal of their score with the NARI Certification Board on the basis of alleged inappropriate exam administration procedures, testing conditions severe enough to cause a major disruption of the examination process, or the content of the exam. No one other than the candidate may make the appeal. The NARI Certification Board shall respond to the candidate within 60 days of receiving the appeal.

Nondiscrimination policy

The NARI Certification Board does not discriminate against any person on the basis of age, gender, sexual orientation, race, religion, national origin, medical condition, physical disability, or marital status.

Answers to sample questions

1. D
2. D
3. D
4. C
5. C
6. A
7. C
8. A
9. C
10. D
11. D
12. A
13. B
14. D
15. B
16. C
17. D
18. C
19. B
20. D
21. D
22. D
23. E