



RECOGNIZED GRADUATE

EXAMINATION HANDBOOK AND APPLICATION

NBC

National Board for Certification in
Dental Laboratory Technology





Dear Recognized Graduate Candidate:

Thank you for your interest in pursuing the Recognized Graduate (RG) designation. You are to be congratulated for earning your degree in dental laboratory technology and for continuing your pursuit of professional excellence within the dental technology community by becoming a RG.

You should know that this distinctive designation, when it is obtained, places you among an elite group of dental technology professionals who hold this designation. RGs are unique since they demonstrate that they have not only completed formal education, but that they have a desire to continue to work and grow in the field of dental technology. The RG designation is only renewable for up to four years and most RGs elect to further elevate their professional status by becoming Certified Dental Technicians (CDTs) during that time period. We, at the NBC Headquarters in Tallahassee, Florida, will be with you throughout the process, providing guidance, information, study material and advice, which will help you along the path to becoming an RG and, if you choose, ultimately a CDT.

This handbook contains the information you need in order to become a Recognized Graduate. For more information about the NBC, visit our website at www.nbccert.org. The exam applications, order forms, and the exam schedules are also available on the website.

Once again, you have made an excellent choice in pursuing the RG designation and we will be there to provide support for you along the way.

If you have any questions, please contact the NBC at certification@nbccert.org or call (800) 684-5310.

NBC

National Board for Certification in
Dental Laboratory Technology



325 John Knox Road, #L103, Tallahassee, FL 32303
(800) 684-5310 Toll Free • (850) 205-5626
(850) 222-0053 Fax • www.nbccert.org



Recognized Graduate Examination Handbook and Application

NBC MISSION

To provide professional certification to both dental technicians and dental laboratories.

NBC VISION

The National Board for Certification in Dental Laboratory Technology is dedicated to administering and promoting globally recognized certification programs to assess the knowledge, skills and abilities of dental technicians and to review facility and staff training criteria for dental laboratories.

STATEMENT OF NONDISCRIMINATION

The Recognized Graduate program is offered to all candidates that meet eligibility requirements regardless of age, race, religion, gender, national origin, marital status or disability.

AMERICANS WITH DISABILITIES ACT FOR EXAMINATION CANDIDATES

No individual with a disability will be deprived of the opportunity to take the NBC examinations solely by the reason of that disability. The NBC complies with the Americans with Disabilities Act and will provide reasonable accommodations for candidates with disabilities. An application requesting special accommodations and arrangements at regularly scheduled examinations must be submitted at least thirty (30) days prior to the examination, in writing, to the NBC. The request must include verification of the disability and the specific type of assistance needed. Please contact the NBC for an application form, if needed.

Please read all sections of this handbook. Information can also be found on the NBC website at www.nbccert.org. You can contact the NBC Headquarters at certification@nbccert.org or (800) 684-5310.

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How to Become a Recognized Graduate

WHAT IS CERTIFICATION?

Certification is the professional standard in dental laboratory technology. It is the means for the dental profession, the dental laboratory industry and all others with an interest to identify dental technicians and dental laboratories that have demonstrated their technical qualifications and their commitment to maintaining high standards in dental technology.

The NBC offers three certification programs: the Certified Dental Technician (CDT) Program, the Certified Dental Laboratory (CDL) Program and the Recognized Graduate (RG) Program. All are national programs. Since certification is voluntary, it represents not only compliance with documented standards, but also a special commitment to quality and professionalism. Each Certified Dental Technician (CDT) and Recognized Graduate (RG) has met industry standards of required knowledge and applied skills through the successful completion of education and/or experience, independent examination(s), and compliance with continuing technical education requirements.

The National Board for Certification in Dental Laboratory Technology (NBC) works closely with many organizations, including the National Association of Dental Laboratories (NADL), the American Dental Association (ADA) and the American College of Prosthodontists (ACP). It also receives outstanding support and participation from U.S. military services. The NBC's CDT program is accredited by the American National Standards Institute (ANSI).

For those engaged in the practice of dental technology, certification offers:

- An incentive to achieve proficiency;
- Criteria for maintaining continuing education;
- Improved career opportunities;
- Peer recognition; and
- Enhanced professional visibility.

For the dentist-client, certification offers:

- Reinforced credibility through the use of credentialed support services;
- A means to encourage proficiency and advancement; and
- An enhanced source of specialized expertise.

Finally, for the dental patient, dental technology certification could establish:

- An enhanced perception of the value of dental services; and
- A positive perception of (and respect for) the career of dental technology.

WHAT ARE THE SKILL STANDARDS?

The goal of the RG examination is to measure the knowledge of a predetermined body of knowledge deemed to represent the successful, professional-level practice of dental technology.

NBC RECOGNIZED EDUCATIONAL PROGRAMS

In order to become an RG, the candidate must pass the RG exam and provide proof of graduation from an NBC-recognized educational program. The NBC recognizes the following programs:

1. All dental technology programs accredited by the American Dental Association's Commission on Dental Accreditation (ADA's CODA)

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How to Become a Recognized Graduate, continued.

2. All dental technology programs offered at educational institutions listed in the US Department of Education Database of Accredited Post-Secondary Institutions and Programs (<http://ope.ed.gov/accreditation/>)
3. Any other educational institutions offering a comprehensive program in dental technology who provide proof of accreditation through their State Higher Education Executive Officers (www.sheeo.org) or the Council for Higher Education Accreditation (<http://www.chea.org>).

For a complete listing of recognized programs, please see the NBC website or contact the NBC Headquarters.

THE EXAMINATION

The examinations given by the NBC are the result of years of continuing development. Questions on the tests originate with technicians in the field. Special task forces (comprised of technicians, laboratory owners, educators and dentists) have been appointed by the NBC to conduct regular reviews, revisions and updates of the exams. All examination content is also subject to ongoing statistical analysis based on actual usage of exam questions, as well as peer review, to ensure relevance to current practices in dental technology.

Candidates must pass the RG examination within one (1) year of graduation. If they choose to become a Certified Dental Technician (CDT) after becoming a RG, they must do so within four (4) years to waive the CDT Comprehensive examination for their CDT certification. The RG designation is only renewable for up to four years.

ANNUAL RENEWAL

In order to retain their certification, RGs are required to apply annually to the NBC for renewal. To qualify for renewal, the RG must attest that he or she has complied with the laws governing the practice of dental technology and dentistry in the applicable state, must submit proof of specific continuing education and must pay the renewal fee.

The current continuing education requirements are subject to change and are available by contacting the NBC Headquarters. Various types of continuing education may be required and may include training on regulatory standards, infection control, scientific and/or technical topics and general professional development topics. Some of the ways the continuing education requirement may be met are through attendance at approved clinics, reading of accepted technical publications, completion of college level credit courses, or the development of original technical clinics or papers.

Renewals are based on an annual renewal cycle. All RGs must renew in September of each year. An invoice is sent to every RG ninety (90) days prior to their certification renewal date.

BECOMING A CDT

Recognized Graduates can obtain their Certified Dental Technician (CDT) certification in the following ways:

1. Current RGs who graduated from a 2-year ADA accredited program can sit for the CDT examinations without having to obtain on-the-job experience.
2. Current RGs who graduated from a non-ADA-accredited program can sit for the CDT examinations after obtaining at least three years of on-the-job experience.

Overview of History, Regulation & Organization in Dental Laboratory Technology

EARLY HISTORY

Dental disease has been treated since the first prehistoric toothache. Primitive history recorded incantations, chemical and vegetable plasters, and various rinses to treat oral pain. Substitutes for natural teeth were made very early from the bones and teeth of animals and later from other materials such as mother-of-pearl, ivory and jeweler's enamel baked on carved bone or metal tooth plates.

Until the mid-eighteenth century, medical doctors concerned themselves little with the mouth. Dental ailments were treated largely by laymen. Only a very small amount of medical literature dealt with dental treatment until 1728, when a Frenchman, Pierre Fauchard, published the first major text dealing with dentistry: *Le Chirurgien Dentiste*. By incorporating into a single book everything known about the science and art of dentistry, Fauchard established a scientific basis for a new medical specialty and earned the title of "The Father of Modern Dentistry."



Set of dentures made for George Washington by John Greenwood, 1798. Courtesy of the Dr. Samuel D. Harris National Museum of Dentistry.

Dentistry was brought to colonial America around 1766; George Washington was among the most famous of early dental patients for whom prosthetic teeth were made. The various forms of dental treatments, techniques and materials used for the replacement of missing teeth soon started to evolve and expand.

FIRST COMMERCIAL DENTAL LABORATORY

As the art and science of dentistry continued to develop, certain dentists developed special processes and skills in fabricating prosthetic devices. Since these processes and skills were in demand by other dentists, the practice of sending out laboratory work to those possessing the processes began.

One doctor particularly noted for his prosthetic skills was Dr. W. H. Stowe who practiced in Boston. Dr. Stowe eventually found that he had little time for his own dental practice after accepting laboratory work from all the dentists who sought his services. In 1883, he began to separate his dental practice from his laboratory services, accepting laboratory work only from a limited number of dentists. However, the laboratory service was so successful that it suggested to him the potential for a dental laboratory serving the profession at large.

In 1887, Dr. Stowe opened a dental laboratory in Boston in which he was later joined by his cousin, Frank F. Eddy. The laboratory, later to be known as Stowe and Eddy, is generally acknowledged to be the first commercial dental laboratory in America separate from a private dental practice.

The establishment of commercial dental laboratories led quickly to the training of apprentices. As these apprentices gained skills, they opened their own laboratories and the growth of the

continued...

Overview of History, Regulation & Organization in Dental Laboratory Technology, continued.

commercial dental laboratory industry began. As more and more laboratories came under the management of dental technicians, a decreasing number of dentists went into the business. By 1910, it is likely that dental technicians managed the majority of commercial dental laboratories.

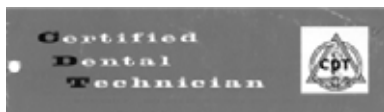
The work and innovations of dental technicians became a significant influence in the development of new prosthetic techniques and materials.

NATIONAL ORGANIZATION

As the dental laboratory craft and industry grew, it was natural that organizations should be formed. In 1950, there were two national organizations representing the dental laboratory industry, but no single unified organization. A group of dental laboratory owners from throughout the country met in Chicago that year, and agreed to form a national, federated association, similar in organization to the American Dental Association, with state-level association components.



This meeting marked the beginning of the National Association of Dental Laboratories (NADL), which today represents more than 1,000 commercial laboratories nationwide. The stated mission of NADL is "The National Association of Dental Laboratories is the unified voice for the dental laboratory industry supporting dentistry and serving the public interest by promoting high standards. NADL accomplishes this by providing programs, services and networking opportunities to meet the evolving technical, educational, professional and business needs of dental laboratories."



CDT Magazine from March 1964 with photo of exam candidates.

BEGINNING OF CERTIFICATION

The early activities of NADL were concentrated in the areas of recognition and education. In 1954, the NADL Education Committee began the development of a certification program which would set skill standards for the individual dental technician. The following year, the NADL Executive Council elected seven persons to the newly formed National Board for Certification in Dental Laboratory Technology, which adopted policies and approved examinations for the certification program. The first Certified Dental Technician examinations were given in October of 1958, and the first CDT designations were awarded in March of 1959.

The examinations undergo continual upgrading and revision. As of early 2007, over 6,000 technicians held CDT designations and over 1,100 CDT examinations were given annually.

GOVERNMENT REGULATIONS

The authority of state governments to regulate the health professions is well established. Every state in the nation has exercised its authority over dental health services by enacting a Dental Practice Act, which establishes the basic relation between the dentist and the dental technician or commercial dental laboratory. In general, these acts state that the fabrication and repair of

dental prosthetic appliances are included in the definition of the practice of dentistry and that no unlicensed person may engage in any phase of such fabrication or repair unless it is at the direction of a licensed dentist. The required "direction" normally means the written dental prescription or work authorization of the dentist. The nature and format of the prescription is spelled out in varying degrees of detail by the different state Dental Practice Acts.

All state dental practice laws specify the functions which the dentist may perform, and the conditions under which he or she may perform them. Any unlicensed person found to perform these functions directly for the public is engaged in the illegal practice of dentistry.

During the past few decades, additional regulation has been imposed on dental laboratories in the form of occupational health and safety laws. These laws deal with the requirement for employers to provide safe and healthy workplaces for their employees, and they are promulgated and administered by both federal and state agencies, including the Occupational Safety and Health Administration (OSHA).

While there are fewer than half a dozen states having more specific regulatory legislation governing the operation of a commercial dental laboratory, there has long been a segment of the laboratory industry desiring the enactment of registration or licensing laws. This is a state-level issue and the decision to seek or oppose such legislation must remain in the hands of the respective states.

The National Board for Certification in Dental Laboratory Technology cannot participate in the influencing of legislation. However, it does encourage the protection of public health and welfare by maintaining the nationally recognized certification standards which form a solid foundation for either statutory or voluntary regulation of dental technology.

Dental laboratory owners and managers must also be aware of applicable state and local laws (zoning, taxation, etc.) which apply to all businesses.

RELATED ORGANIZATIONS AND INSTITUTIONS

In addition to those obligations which are set by law, there are also groups and institutions which are concerned with the maintenance of proper ethical and technical relationships between the dentist and the dental technician. These include dental schools, schools of dental technology, dental societies and dental laboratory associations.

The role of the dental school goes beyond imparting scientific information and skill to the dental student; it extends to giving students an understanding of the many intangible factors that contribute to the making of a professional person. Included in these factors are the fundamentals of ethics, which govern the graduate's conduct in practice and the relationship that must be maintained with auxiliary personnel and commercial dental laboratories.

Dental technology schools have similar responsibilities in the educating and training of dental technicians. Formal education in dental technology has grown from three accredited two-year programs in 1961 to approximately 20 today. The American Dental Association's Commission on Dental Accreditation (ADA's CODA) issues accreditation. The dental laboratory industry



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Overview of History, Regulation & Organization in Dental Laboratory Technology, continued.

is represented in the accreditation process by having a representative on the Commission, membership on its Dental Technology Education Committee, and numerous consultants who take part in the onsite inspections required for program accreditation.

The roles of the American Dental Association and the National Association of Dental Laboratories and their affiliated state-level associations include the establishment and maintenance of professional ethics and standards of conduct for their members. They are also active in promoting programs of continuing education for their members. Further, these organizations are primary sources of legislative initiatives regarding the laws governing the practice of dentistry and dental technology.

OTHER STANDARDS

As with most professions and industries, there are both technicians and dental laboratory owners/managers who desire to achieve and be recognized for their advanced levels of professionalism.

For the laboratory owner/manager, the NBC administers the Certified Dental Laboratory (CDL) program. The CDL program was created to promote and maintain a recognition that will assist dental laboratories in their continuing efforts to improve the quality and efficiency of the dental team's service to the public. This is accomplished by:

- Promoting a means for identifying dental laboratories which meet specific standards established for the certification program; and
- Encouraging dental laboratories to improve the quality and efficiency of their services and facilities.

For the technician who focuses their work on a specific activity in the manufacture of dental devices and does not have a formal educational foundation in dental technology, the NBC offers the Modularization program. This program assesses the competency of process/task technicians who perform a specific set of tasks. It allows candidates to earn a Modularization "Certificate of Competency" through the completion of a written exam and a practical exam in their specific area of expertise. Twelve modules are offered, across five specialty areas.

National Board for Certification in
Dental Laboratory Technology

MODULARIZATION

**CERTIFIED
DENTAL
LABORATORY**



For more information about any of the programs offered by the NBC, please contact the NBC Headquarters or refer to the NBC website at www.nbccert.org.

Examination Application Process

ELIGIBILITY FOR RG CERTIFICATION EXAMS

All technicians applying for the RG examinations must:

1. Have a working knowledge of the English language.
2. Be a high school graduate (or the documented equivalent).
3. Be of satisfactory ethical and legal standing as defined by the NBC's disciplinary standards.
4. Meet the educational prerequisites required for testing.

The educational prerequisites for testing state that a candidate must have graduated or plan to graduate within one year from the date of the examination from a dental technology educational program that is recognized by the National Board for Certification in Dental Laboratory Technology. Prior to being recognized as an RG, proof of graduation is required.

See NBC recognized educational programs on page 3 to see if your dental technology program is a recognized by the NBC.

APPLICATION PROCESS AND FEES

Eligibility to take the RG examinations will be determined by the NBC upon receipt of a completed application and payment of the examination fees. The RG exam fee is \$190.

If the exam is not passed on the first attempt, a new application and fee must be submitted before the candidate can retake the exam.

EXAM CONFIRMATION

Exam dates are tentative until thirty (30) days prior to the exam, after the published registration deadline. Please call the NBC to check on the expected status of your exam prior to making travel arrangements. Confirmation letters with instructions and exam site contact information are mailed approximately two (2) weeks prior to the exam.

If an application is received well in advance of the registration deadline, candidates will receive a postcard notifying them that their application has been received and indicating the date and location for which they have been tentatively scheduled.

RESCHEDULING EXAMINATIONS

To reschedule the RG exam, the candidate must notify the NBC at least ten (10) business days prior to the scheduled examination date. The full examination fee from the first reservation will be applied to the new examination date and the candidate will have one year to reschedule their examination without forfeiting the fee. If the NBC is not notified at least ten (10) business days prior to the scheduled examination date, a \$25 administrative fee will apply but the balance will be applied to the new examination date as long as the NBC was notified at least twenty-four (24)

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Examination Application Process, continued.

hours before the exam. If the candidate does not notify the NBC at least twenty-four (24) hours before the exam or fails to appear for a scheduled examination, all application fees are forfeited.

CANCELLATION POLICY

If a candidate needs to cancel the RG examination, they must notify the NBC at least ten (10) business days prior to their scheduled examination. If the NBC does not receive notification or if notification is provided too late, the candidate will be considered absent and forfeit all application fees.

EMERGENCY SITUATIONS

Once a candidate has been scheduled for a specified examination, they must attend that examination or cancel or reschedule as outlined above. However, the NBC recognizes that there are sometimes unavoidable emergency situations. Each situation will be considered individually, but the NBC must be immediately notified by a written explanation when a situation arises. This explanation should be accompanied by supporting documentation if there is any (eg. police report, hospital receipt, military orders).

There are generally five acceptable reasons for failing to appear:

1. Serious illness of either the candidate or an immediate family member.
2. Death in the immediate family.
3. Disabling traffic accident.
4. Court appearance or jury duty.
5. Unexpected military deployment.

Candidates will be notified by the NBC whether they are approved to retake the examination and may be responsible for up to \$100 in additional processing fees.

About the RG Examination

EXAMINATION CONTENT

The Recognized Graduate examination is a written multiple-choice test. There are 160 questions on the exam, covering basic dental laboratory knowledge: oral anatomy, tooth morphology, materials science, health & safety, fundamental theory and terminology across the five specialties tested by the NBC (Ceramics, Complete Dentures, Crown & Bridge, Orthodontics & Partial Dentures).

Candidates have up to two and one-half (2 ½) hours to complete the examination; they may use as much or as little of this time as they require.

The Recognized Graduate examination is the measure for basic knowledge in history, ethics and the five specialties. The following subjects may be included:

GENERAL

- I. Anatomy & Terminology
 - A. Occlusion
 - B. Tooth morphology
 - C. Basic anatomical landmarks
 - D. Identification of muscles
- II. Materials
 - A. Gypsum products
 - B. Waxes
 - C. Resins
 - D. Metals
 - E. Acids
- III. Fabrication & Technique
 - A. Handling and interpretation of dental prescriptions or work authorizations
 - B. Use and maintenance of laboratory equipment
 - C. Weights, measures and chemical symbols used in the laboratory
- IV. The Dental Profession & the Dental Laboratory Industry
 - A. History
 - B. Industry and professional organizations
 - C. The CDT program
 - D. Dental laws and ethics
 - E. Infection control

CERAMICS

- I. Impression Materials
 - A. Types
 - B. Handling
 - C. Custom trays
- II. Cast Fabrication
 - A. Materials-physical properties
 - 1. Stone
 - 2. Epoxy and resins
 - 3. Refractory materials
 - B. Techniques

- C. Dies
 - 1. Types of preparations
 - 2. Margins
 - 3. Undercuts
 - 4. Alternatives to die preparation
 - 5. Spacers-lubricant
 - 6. Die stability
- III. Articulation
 - A. Types
 - B. Uses
 - C. Occlusal registrations
 - D. Mounting procedures (face bows, etc.)
- IV. Materials — Types, Physical Properties & Handling Characteristics
 - A. Gypsum
 - B. Waxes
 - C. Metals, alloys and solder
 - D. Porcelain, composites and stains
 - E. Separating materials
 - F. Fluxes and anti-fluxes
 - G. Alcohols
 - H. Acids and pickling agents
 - I. Wetting agents
 - J. Wax solvents
 - K. Abrasives and polishing agents
 - L. Laboratory gases
 - M. Investments/refractories
- V. Pattern Design & Fabrication
 - A. Abutments
 - B. Pontics
 - C. Connectors
- VI. Spruing
 - A. Sprue materials
 - B. Techniques
 - 1. Venting
 - 2. Reservoirs
 - 3. Auxiliary sprues
 - 4. Direct and indirect
 - 5. Specific gravity

continued...

About the RG Examination, continued.

- VII. Investing
 - A. Technique
 - 1. Hygroscopic
 - 2. Thermal
 - 3. Vacuum pressure
 - B. Handling
- VIII. Wax Elimination (Burnout)
- IX. Casting & Divesting
 - A. Centrifugal
 - B. Induction
 - C. Vacuum
 - D. Weights and measures
 - E. Divesting
- X. Finishing Procedures for Substructures
- XI. Soldering — Pre- & Post-porcelain
- XII. Tooth Morphology/Terminology
 - A. Anatomy
 - B. Occlusal function
 - C. Contour
- XIII. Metal Preparation
 - A. Aluminum oxide blasting
 - B. Cleaning (steam, ultrasonic)
 - C. Oxidation
- XIV. Opaque Technique
 - A. Spraying
 - B. Brush
 - C. Instruments
- XV. Porcelain Application
 - A. Internal modifications
 - B. Contouring
 - C. Buildup and condensing
- XVI. Firing Technique
 - A. Opaque
 - B. Body
 - C. Add-on
 - D. Stain and glazes
- XVII. Finishing

COMPLETE DENTURES

- I. Oral Anatomy & Physiology
 - A. Muscles
 - B. Anatomical landmarks
 - C. Occlusion
- II. Impressions — Materials & Handling
 - A. Preliminary impressions
 - B. Custom trays
 - C. Final impressions
- III. Casts — Materials & Fabrication
- IV. Trial Denture Bases
- V. Occlusal Rims
- VI. Articulators & Articulation of Casts
- VII. Prosthetic Teeth
 - A. Selection (types and materials)
 - B. Arrangement
- VIII. Denture Base Fabrication

- IX. Flasking
 - A. Gypsum materials
 - B. Mold preparation
- X. Packing & Processing Dentures
 - A. Materials
 - B. Casting methods
 - C. Processing equipment and techniques
 - D. Remount and corrections
 - E. Removing cast from dentures
- XI. Finish & Polish Denture Base
 - A. Equipment (lathes, handpieces)
 - B. Abrasives and polishing agents
 - C. Techniques and procedures
- XII. Post-delivery Laboratory Procedures
 - A. Rebase
 - B. Reline
 - C. Repairs

CROWN AND BRIDGE

- I. Impression Materials
 - A. Types
 - B. Handling
 - C. Custom trays
- II. Cast Fabrication
 - A. Materials
 - B. Techniques
 - C. Dies
- III. Articulation
 - A. Types
 - B. Uses
 - C. Occlusal registrations
 - D. Mounting procedures (face bows, etc.)
- IV. Materials- Types, Physical Properties & Handling Characteristics
 - A. Gypsum
 - B. Waxes
 - C. Metals, alloys and solder
 - D. Composites and resins
 - E. Separating materials
 - F. Fluxes and anti-fluxes
 - G. Alcohols
 - H. Acids and pickling agents
 - I. Wetting agents
 - J. Wax solvents
 - K. Abrasives and polishing agents
 - L. Laboratory gases
 - M. Investments/refractories
- V. Pattern Design & Fabrication
 - A. Abutments
 - B. Pontics
- VI. Spruing
 - A. Sprue materials
 - B. Techniques
- VII. Investing
- VIII. Wax Elimination (Burnout)
- IX. Casting & Divesting

- X. Finishing Procedures
 - A. Full cast (finishing and polishing)
 - B. Substructure (finishing)
- XI. Soldering
 - A. Technique
 - B. Investing
 - C. Divesting
- XII. Tooth Morphology/Terminology
 - A. Anatomy
 - B. Occlusal function
 - C. Contour

ORTHODONTICS

- I. Orthodontic Appliances — Fixed
 - A. Types
 - 1. Passive
 - 2. Active
 - 3. Functional
 - B. Identification
 - C. Function
- II. Orthodontic Appliances — Removable
 - A. Types
 - 1. Passive
 - 2. Active
 - 3. Functional
 - B. Identification
 - C. Function
- III. Materials
 - A. Wire
 - B. Plastics
 - C. Waxes
- IV. Clasps
 - A. Types
 - B. Functions and uses
- V. Auxiliaries
 - A. Springs
 - B. Screws
 - C. Coil spring (open and closed)
 - D. Labial bows
 - E. Other (bands, etc.)
- VI. Acrylics
 - A. Vacuum formed
 - B. Sprinkle technique
 - C. Dough pack (cold cure)
 - D. Light cured
 - E. Heat cured
 - F. Finishing and polishing
- VII. Soldering/Welding
 - A. Materials
 - B. Equipment
 - C. Finishing and polishing
- VIII. Appliance Repair
 - A. Replace auxiliaries
 - B. Acrylic repair
 - C. Metal repair
 - D. Infection control

- IX. Study Casts
 - A. Pouring
 - B. Trimming
 - C. Measurements
 - D. Infection control
- X. Equipment
 - A. Hand instruments
 - B. Bench equipment
 - C. Maintenance and safety
- XI. Splints

PARTIAL DENTURES

- I. Components of Framework
 - A. Major connectors (types and functions)
 - B. Minor connectors (types and functions)
 - C. Direct retainers
 - D. Indirect retainers
 - E. Rests
 - F. Denture bases
 - G. Vertical stress eliminators
- II. Cast Fabrication
 - A. Impression materials and handling
 - B. Cast materials and handling
 - C. Diagnostic casts
 - D. Master cast preparation
- III. Articulation of Casts
 - A. Jaw relations records
 - B. Hand articulation-plasterless articulators
- IV. Survey & Design
 - A. Surveyors (path of insertion)
 - B. Technique for surveying
 - C. Clasp selection
 - D. Major connectors
 - E. Beading outline
 - F. Relief for acrylic retention
- V. Refractory Cast Fabrication
 - A. Refractory materials (qualities)
 - B. Duplication
- VI. Preparation of Refractory Cast — Transfer Design
- VII. Fabrication of Partial Dentures
 - A. Pattern application
 - B. Spruing
 - C. Investing
 - D. Burnout
 - E. Casting (types)
 - F. Retrieval of casting
 - G. Altered (split) cast technique
 - H. Finishing and polishing of metal framework
 - I. Selection and arrangement of artificial teeth
 - J. Fabrication of resin saddles
- VIII. Repairs & Additions
- IX. Wrought Metals

continued...

About the RG Examination, continued.

EXAMINATION REFERENCES

The NBC examinations were developed on the basis of practice in the field and are not based on a specific textbook or course of study. Therefore, many sources of information are appropriate for study and review. The references listed in this publication must not be regarded as the only useful publications. They should be considered only as representative sources of the types of information covered by the examination.

An excellent source of preparatory material for the RG examinations is the United States Air Force Manuals. These include *Dental Laboratory Technology, Basic Sciences, Removable Prosthodontics, and Orthodontics (2005)*, Air Force Pamphlet 47-103, Volume One and *Dental Laboratory Technology, Fixed and Special Prosthodontics (2005)*, Air Force Pamphlet 47-103, Volume Two. Electronic copies of these manuals are available through the National Association of Dental Laboratories (NADL) www.nadl.org.

Many other texts are useful and we encourage candidates to use multiple references. Other recommended publications include:

GENERAL REFERENCES

United States Air Force Manuals, see above.

*Academy of Denture Prosthetics
Glossary of Prosthodontic Terms
St. Louis, C.V. Mosby Co. (no longer published)*

*Brand, Richard W. and Donald Isselhard
Anatomy of Orofacial Structures
St. Louis, C.V. Mosby Co., 1986*

CERAMICS AND CROWN & BRIDGE

*Murray, Henry V.; and Troy Sludre
Fixed Restorative Techniques
Chapel Hill, University of NC Press, 1989*

*Dykema, Roland; Goodacre; Phillips
Modern Practice in Crown & Bridge Prosthodontics
Philadelphia, W.B. Saunders Co., 1986 (no longer published)*

*Morrow, Robert M.; Rudd; Eismann
Dental Laboratory Procedures: Fixed Partial Dentures, Volume II
St. Louis, C.V. Mosby Co., 1986 (no longer published)*

In addition to these texts, candidates testing in Ceramics may wish to utilize manufacturers' literature as further resources.

COMPLETE DENTURES

*Sowter, John B.
Removable Prosthodontic Techniques
Chapel Hill, University of NC Press, 1986*

*Morrow, Robert M.; Rudd; Eismann
Dental Laboratory Procedures: Complete Dentures, Volume I
St. Louis, C.V. Mosby Co., 1986 (no longer published)*

ORTHODONTICS

*Graber, T.M.
Orthodontics: Principles & Practices
Philadelphia, W.B. Saunders Co., 1972 (no longer published)*

*Morrow, Robert M.; Rudd; Eismann
Dental Laboratory Procedures: Removable Partial Dentures, Volume III
St. Louis, C.V. Mosby Co., 1981 (no longer published)*

PARTIAL DENTURES

*Sowter, John B.
Removable Prosthodontic Techniques
Chapel Hill, University of NC Press, 1986*

*Morrow, Robert M.; Rudd; Eismann
Dental Laboratory Procedures: Removable Partial Dentures, Volume III
St. Louis, C.V. Mosby Co., 1986 (no longer published)*

*Henderson, Davis; and Victor Steffel
McCracken's Removable Partial Dentures (6th Edition)
St. Louis, C.V. Mosby Co., 1981 (no longer published)*

EXAM PREPARATION & SAMPLE QUESTIONS

Preparation for all of the exams leading to certification begins at the technician's first introduction to the dental laboratory. Ideally, it is a process of training, education, experience and continuing education. In publishing this manual, the NBC is not attempting to teach the competencies measured by its examinations, but rather to give technicians an understanding of examination content, structure and procedures so that they may approach the RG examinations with the confidence that comes from knowing what to expect.

It is to each candidate's advantage to plan, work and practice towards the completion of their examinations. Candidates are required to complete all parts of their examinations without aid or assistance. Exam Proctors may not define terms or answer questions relating to the exam content.

For the Recognized Graduate exam, candidates will be instructed to read the question carefully, select the best answer and then locate the question number on the answer sheet and mark the circle corresponding to the answer selected. The questions on the examinations will look something like this:

QUESTIONS:

1. The cutting edge of an anterior tooth is called:
 - A. Buccal
 - B. Incisal
 - C. Distal
 - D. Mesial
2. What is measured by a Boley gauge?
 - A. Inches
 - B. Centimeters
 - C. Millimeters
 - D. Picas

ANSWERS:

1. A B C D
2. A B C D

THE GRADING SYSTEM

Grading is not a comparative process. All grades are based on a standard that the NBC believes to represent basic competence in dental technology and in each of the specialties represented.

Grading is completed using the standardized grade sheets completed by the candidates during the exams. It is important that these sheets are completed properly to ensure accurate grading.

NOTIFICATION OF GRADES

Candidates will be mailed their grades within two (2) weeks after the examination. Examination results are reported directly to each candidate in writing and are otherwise held as confidential. Because results are sent by mail, it is important that all candidates maintain a current mailing address with the NBC Headquarters. Examination results are not available by telephone.

FAILING GRADES

A candidate who is unsuccessful in their RG examination must repeat that examination if they wish to pursue certification. Credit for passing the RG exam may be retained for up to four (4) years. If an RG wishes to become a CDT, the candidate has four (4) years to successfully pass the other required exams from their date of becoming a Recognized Graduate. Candidates may repeat examinations one or more times as needed.

Appeals

The following appeals will be considered by the NBC:

PROCEDURAL APPEALS

If a candidate believes that any circumstance, event or procedure at the exam site had an adverse effect on their ability to successfully complete the examination, the Exam Proctor must be advised of the candidate's concerns before the candidate departs from the exam site. If a candidate is uncomfortable speaking with the Exam Proctor, the candidate may speak to the host representative. Either way, a written record must be created at the exam site. Any comments regarding circumstances, events or procedures at the exam site that are not logged while there will not be considered for appeal.

Candidates must also notify the NBC Headquarters in writing of their request for appeal within two (2) weeks of the exam date. The written request for appeal should include a detailed description of the event, circumstance, or procedure that affected the candidates' performance on the examination. No procedural appeals received later than two (2) weeks after the examination date will be considered.

The complaint and supporting information shall be reviewed to determine if unsatisfactory examination conditions did exist. Upon determination that a candidate did not have a "fair" opportunity to take the exam under acceptable conditions, a solution will be developed with the candidate based on the particular situation. If it is determined that the conditions were acceptable, the candidate has the option to appeal to the NBC Board of Trustees.

GRADE APPEALS

All grade appeals must be filed by the candidate with the NBC, in writing, no later than two (2) weeks after the receipt of examination results. Grade appeals may be requested if the candidate feels there has been an error in the reporting or the reading of the answer sheets or if a candidate believes that there was an incorrect answer used in grading a specific question. The candidate should submit a written request for a score review to verify accuracy in the calculation of the grade, along with documentation of the alleged correct answer if applicable, to the NBC Headquarters no later than two (2) weeks after the receipt of examination results.

Upon receipt of a written request for a grade appeal, the grades will be recalculated by hand and verified. Any contested questions will be reviewed. If a change is required, the NBC will alter the grade as appropriate. Either way, the candidate will be notified of the outcome as soon as a determination has been made.

Application for the Recognized Graduate Examination

ELIGIBILITY FOR RG CERTIFICATION EXAM

All technicians applying for the RG examinations must:

1. Have a working knowledge of the English language.
2. Be a high school graduate (or the documented equivalent).
3. Be of satisfactory ethical and legal standing as defined by the NBC's disciplinary standards.
4. Meet the educational prerequisites required for testing.

The educational prerequisites for testing state that a candidate must have graduated or plan to graduate within one year from the date of the examination from a dental technology educational program that is recognized by the National Board for Certification in Dental Laboratory Technology. Prior to being recognized as an RG, proof of graduation is required.

APPLICATION INSTRUCTIONS

1. Type or print all answers clearly in ink.
2. Use extra sheets of paper if more space is needed for requested information.
3. Be honest, accurate and thorough in completing all sections of this application. The National Board for Certification in Dental Laboratory Technology (NBC) reserves the right to reject any application if the NBC has evidence that the applicant has made a false or misleading statement in the application or any supporting documents.
4. Payment is due with this application. The check or money order, payable to the National Board for Certification, must be in the amount of the application and examination fee for this candidate only. The NBC also accepts Visa, MasterCard and American Express.
5. The NBC Headquarters should receive all applications by the published deadline. Any late applications must be accompanied by the late fee and are subject to NBC approval. Applications are accepted in the order in which they are received, up to the capacity of each exam site.
6. Exam dates are tentative until thirty (30) days prior to the exam. Please call the NBC to check on the expected status of exams prior to making travel arrangements. The NBC reserves the right to cancel the exams if there are not enough candidates registered.
7. Once an exam has been confirmed, candidates are required to attend their selected examination. Failure to do so may result in the forfeiture of all examination fees. Please read the RG Examination Handbook for additional details about rescheduling and cancellations.

All RG candidates should thoroughly read the entire RG Examination Handbook for further details and information regarding certification and procedures.

Application for the Recognized Graduate Examination

For Office Use Only: Candidate# _____

Received _____ Site# _____

Approved _____ Date _____

I. APPLICANT INFORMATION

1. Name _____ Dr./Mr./Mrs./Ms./Miss/Other _____
2. Street Address _____

- City _____ State _____ Zip _____
3. E-mail _____ 4. Work Phone _____
5. Home or Cell Phone _____ 6. FAX _____
7. Date of Birth _____

II. EXAM SELECTION

1. I hereby apply for the Recognized Graduate certification exam. I wish to take the exam at the following examination location and on the following date, selected from the current examination schedule on www.nbccert.org.

First Choice: City _____ Date _____

Second Choice: City _____ Date _____

Applications may not be accepted after the deadline specified for each exam without NBC approval and a late fee of \$25. Applicants for exams are accepted in the order they are received by the NBC Headquarters up to the capacity of each facility. If your first choice location is filled, you will be contacted and assigned, if possible, to your second choice location. If the NBC cannot accommodate you at either your first choice or your second choice location, you are entitled to a refund of your examination fees or you may have your application and fees held until a location becomes available for you.

III. LANGUAGE REQUIREMENT

Do you read, speak and write the English language? Yes No

IV. LEGAL REQUIREMENT

Have you been convicted of illegal practice of dentistry? Yes No

V. PERSONAL REFERENCES

Please give the full names and mailing addresses of three persons (not relatives) who are able to verify information submitted on this application, or who have personal knowledge of the applicants character.

1. Name _____

Address _____

2. Name _____

Address _____

3. Name _____

Address _____

VI. EDUCATION

1. Did you graduate from high school or the equivalent (such as earning a GED)? Yes No

2. Dental Technology Education Program or School: _____

a) City and state: _____

b) Full Time Part Time

c) Date of Enrollment: Month _____ Year _____

3. Graduation (Complete one):

a) Expected Date of Graduation: Month _____ Year _____

b) Date Already Graduated: Month _____ Year _____

VII. EDUCATOR'S STATEMENT

TO THE APPLICANT: This statement must be signed by your department head or senior instructor who can verify your eligibility to take the Recognized Graduate examination.

TO THE EDUCATOR/DEPARTMENT HEAD: Your signature below, on behalf of your educational institution, indicates that you believe this applicant to have satisfactorily completed such course of study as to qualify him or her as a candidate for graduation from your course in dental technology. By reading and verifying the information submitted by the candidate on this application and by confirming his or her completion of the course of study, you are providing valuable credibility to maintaining high standards of recognition in dental technology.

Educator or Department Head Signature _____

Title _____ Date _____

E-mail _____ Phone _____

continued...

Recognized Graduate Exam Application, continued.

VIII. APPLICANT'S AFFIDAVIT

To the National Board for Certification in Dental Laboratory Technology (NBC):

I have read and understand the application instructions and the RG Examination Handbook and I agree to submit to the Recognized Graduate examination as prescribed by the NBC.

I agree to indemnify and hold harmless the NBC, its Trustees, officers, employees and agents, and the institution where the RG examination is administered from any and all liability for injury or damages suffered by me, or which I might cause to others, during the course of taking my examination.

I agree to submit to testing for certification according to the requirements and procedures specified by the NBC.

I further agree to abide by the laws and regulations which govern the practice of dentistry and the providing of dental laboratory technology services, restorations and devices to the dental profession.

I affirm that all statements made by me in this application are true and correct to the best of my knowledge. I understand that any misrepresentation of fact made in this application for testing or in future applications to the NBC for certification testing or renewal, or in my personal claim to certification (use of the RG designation and logo), may be found cause for suspension or denial of certification or eligibility for certification testing.

I hereby verify that I have _____ years of education in dental laboratory technology.

Applicant's Signature _____ Date _____

IX. PAYMENT

Recognized Graduate Exam Fee \$190

Any applications submitted after the published deadline must be accompanied by a late fee of \$25 and are subject to NBC approval.

Enclosed is Check # _____ in the amount of \$ _____ payable to the NBC.

Please charge my credit card VISA MC AMEX Amount \$ _____

Credit Card # _____ Exp. _____ CCV Code* _____

* Credit Card Verification (CCV Code): This is the 3-digit number that appears on the reverse side of your credit card. For American Express cards only, this is the 4-digit number on the front of your card.

Cardholder Name _____ Signature _____

Billing Address _____

Phone _____

The fees published in this application are subject to change. Please verify fees with the NBC Headquarters before submitting this application. Write, call or visit the web site of the National Board for Certification in Dental Laboratory Technology at www.nbccert.org. The web site contains updated examination fees, schedules and complete candidate information as well as information about other programs.

If you have not signed your application or enclosed the required fees, your application will not be processed.

Please send completed application and fee to:
NBC
325 John Knox Road, #L103
Tallahassee, FL 32303
(850) 222-0053 Fax

CHECKLIST

HAVE YOU:

- read this handbook in its ENTIRETY?
- COMPLETELY filled out the application?
- SIGNED the application affidavit?
- secured attesting SIGNATURES from your instructor?
- enclosed the appropriate FEE?
- kept a COPY of the entire application for your records?

WE RECOMMEND THAT YOU KEEP THIS CANDIDATE HANDBOOK FOR REFERENCE THROUGHOUT THE ENTIRE APPLICATION AND EXAMINATION PROCESS.

This handbook contains information about how to become nationally certified in dental laboratory technology. To avoid problems in processing your application, it is important that you follow the guidelines outlined in this handbook and that you comply with the required deadlines. If you have questions about the policies, procedures or processing of your certification after reading this handbook, please go our website at www.nbccert.org, or email us at certification@nbccert.org. Additional copies of this handbook may be obtained by emailing certification@nbccert.org, by calling (800) 684-5310 or by sending a written request to the NBC at the address below.

NBC

National Board for Certification in
Dental Laboratory Technology



325 John Knox Road, #L103, Tallahassee, FL 32303
(800) 684-5310 Toll Free • (850) 205-5626
(850) 222-0053 Fax • www.nbccert.org

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