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November 16, 1992

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Office of the Secretary  
Federal Communications Commission  
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

To Whom It May Concern:

The Roach Organization, Inc. (TRO), would like to take this opportunity to re-state our strong interest in providing examination services to applicants for the FCC's commercial radio licenses.

I would like to submit the following reply comments after reviewing the comments submitted to the Office of the Secretary with respect to the privatization of examinations:

- 1) If the FCC chooses to maintain responsibility for item and examination development, as the FAA currently does, TRO can provide consulting services to the FCC to facilitate the appropriate level of item development to ensure the integrity of the examinations. In this case TRO will also provide a full range of services for examination delivery including candidate registration, fee collection, test administration, score reporting, and statistical evaluations.
- 2) If the FCC chooses to turn item and examination development over to a private entity, TRO recommends that a single entity be used for item development, or that the FCC approve each private entity's examinations, so that all candidates for licensure take psychometrically equivalent examinations.

Under this scenario, TRO would work in partnership with an organization such as NABER, NARTE or SBE to maintain the item bank and to perform all other functions for examination delivery as described above and in our original comments.

TRO currently works in partnership with NABER to deliver their Two-Way Radio Technician examination. The scope of services which TRO provides to NABER includes psychometric consultation, item bank maintenance, examination scheduling, delivery and scoring, grade reporting, and maintenance of candidate records. Examinations are delivered through TRO's network of computerized Test Centers which means that:

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The Roach Organization, Inc.  
4660 West 77th Street, Edina, Minnesota 55435  
Telephone (612) 832-1000, Fax (612) 832-1290

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- Examinations are available on-demand;
- Results are reported to candidates immediately;
- Examinations are administered through a nationwide network of over 70 Test Centers;
- Examinations are administered by full-time trained and certified proctors.

Although examinations are administered on-demand, candidate records are maintained and minimum time requirements can be set before candidates can retake examinations. This provides great convenience to the candidate and, at the same time, maintains the integrity of the examination by not allowing an individual candidate to re-test too frequently. For example, for any given candidate, examinations may be available on an every-other-month basis.

*TRO believes that our long term experience in the certification and testing industry in general and our highly successful experience working with the FAA and with NABER in particular, makes us uniquely qualified to provide the highest level of examination service to the FCC and it's candidates for licensure.*

TRO was the original provider of computerized examination delivery for the FAA. In April of 1989, the FAA issued Action Notice A 8080-1 (see attached), which allowed the implementation of prototype computerized airmen knowledge testing begin before the actual Order 8080.XX was published. TRO strongly recommends that the FCC follow a similar course of action. The experience and information gained by implementing computerized testing under such an Action Notice will greatly contribute to the publishing of the actual Order.

TRO looks forward to working with the FCC to accomplish their goals of reducing the cost and administrative burdens of providing examinations for licensure, and to increase the service and convenience provided to FCC candidates.

Sincerely,



Cindy A. Gordon  
Account Manager  
Certification and Testing Services

CAG/jb

Attachment: FAA Action Notice A8080-1

# ACTION NOTICE

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

A 8080.1

**Subject:** ACTION: ACTION NOTICE - Computer-Assisted Airmen Knowledge Testing  
**Approval Date:** April 14, 1989

**From:** Acting Director, Flight Standards Service, AFS-1  
**Expiration Date:** April 14, 1990

**To:** Regional and Center Directors (except Technical Center)  
Europe, Africa, and Middle East Office Directors  
Regional Flight Standards Division Managers  
Superintendent, FAA Academy, AAC-900  
Manager, Airmen and Aircraft Registry Division, AVN-400  
Manager, Flight Standards Staff, AEU-200  
GADO's, ACDO's, and FSDO's

**Reply to**  
**Attn of:** Beavers:FTS 747-4149

This action notice announces the implementation of a prototype computerized airmen knowledge testing method applicable to all Federal Aviation Administration (FAA) pilot and flight engineer certification areas. The information contained in this action notice will be incorporated into Order 8080.XX (to be published), Conduct of Airmen Knowledge Tests Via the Computer Medium.

Historically, knowledge tests for FAA airmen certificates and ratings have been administered via the written method. In recognition of the success of computer testing programs used by various schools, industrial firms, and government entities throughout the United States, the FAA has approved airmen knowledge testing via the computer medium since 1986. Computer-assisted airmen knowledge testing is currently limited to FAA designated written test examiners who qualify under the provisions of Order 8080.1D, Conduct of Airmen Written Tests, chapter 6, paragraph 78; and also to FAR Part 141 Pilot Schools who qualify under requirements which parallel those outlined in Order 8080.1D. The expansion of computer-assisted testing is expected to have only a nominal budget impact (i.e., 1.2 man-years and approximately \$10,000 for FY-89).

The following definitions correspond with terms used in this action notice:

- (1) **Computer Testing Designee (CTD).** A key official employed by a company, school, or university authorized to administer FAA knowledge tests via the computer medium.
- (2) **Standard Deviation.** Unit of measure of the spread of the test scores about the mean. Assists in identifying a score in relation to the mean.
- (3) **Validity.** The determination of how well a test measures what it is supposed to measure.
- (4) **Reliability.** The determination of test consistency.
- (5) **Measurement Error.** A function of test reliability. The observation of how closely the test score represents the applicant's actual or true knowledge.

**NOTE: THE CONTENTS OF THIS ACTION NOTICE, IF APPROPRIATE, SHALL BE INCORPORATED INTO THE DIRECTIVES SYSTEM WITHIN 12 MONTHS AFTER THE DATE OF APPROVAL.**

**Distribution:** A-XY-1; A-W(EU)-1; A-X(FS)-2; A-Y(AI)-2;  
AVN-400 (5 copies); AEU-200 (5 copies);  
A-FFS-1,2,7(MAX); AAC-950 (15 copies)

**Initiated By:** AVN-130

FAA Form 1320-18 (12-85) - Supersedes FAA Form 1320-Test

- (6) **"P" Value.** Proportion of applicants selecting each test item response.
- (7) **Skewness.** Test distortion or the state of asymmetry shown by a frequency distribution.
- (8) **Kurtosis.** Test evaluation which checks the state or quality of peakedness or flatness of the graphical representation of a statistical distribution.
- (9) **Point Biserial Coefficient of Correlation.** Mechanism to differentiate between high vs. low performer responses on individual test items.

The FAA plans to expand computer-assisted knowledge testing to make it available to all applicants for airman certificates and ratings. Before implementing this expansion, the FAA is proceeding with a prototype involving at least one certification/rating area which will be targeted into selected geographical areas nationwide. The prototype will serve as a test for evaluating the feasibility of adopting computer-assisted knowledge testing for all airman certificates and ratings on a nationwide basis; however, parallel written testing procedures will continue for the foreseeable future.

The Aviation Standards National Field Office, Examinations Standards Branch, AVN-130, will be the approving authority for the CTD. Approval will be coordinated with the Airman and Aircraft Registry Division, AVN-400, to assure computer compatibility. FAA designation will be based upon level of compliance with the experience and support requirements, and the technical specification criteria established by this action notice. FAA district offices will continue jurisdiction over written test examiners and pilot schools operating under FAR Part 141 using previously established guidelines for computerized testing.

The following describes the experience and support requirements of computer testing designee applicants:

- (1) Clearly demonstrated competence in the areas of computer technology, centralized data base management, national communications network operation and maintenance, national facilities management, software maintenance and support, and technical training and customer support.
- (2) Clearly demonstrated competence in providing computer-assisted testing, test administration, and data transfer service on a national scale. This should include experience as a major training and education and high technology supplier to the aviation industry including the Federal Government.
- (3) Consistently ensured a superior, secure, service level by providing maintenance and support for all aspects of the service from internal resources including communications data network, centralized data base, facilities, staffing, equipment maintenance, and software support.

Technical specification criteria requirements of computer testing designee applicants are:

- (1) The capability of providing a question bank containing questions found within the FAA-T-8000 series question books. Illustrations and other supplementary information contained within the book will be issued to the applicant as printed handouts. All questions entered into the computer must be numbered exactly as they appear in printed form. Total length of the test shall be equivalent to the number of questions in the appropriate written test using FAA subject matter percentages to achieve proper balance.
- (2) The capability of providing decentralized testing sites that are open during normal business hours Monday through Friday, with the capability of expanding those hours of operation.
- (3) The capability of scheduling applicant test appointments at convenient times, i.e., Monday through Friday from 9 a.m. to 5 p.m.
- (4) The capability of providing testing system security, which at a minimum requires:
  - (a) A method of entering exhibit ID numbers into the system to assure inventory/security control of the exhibits to be maintained.
  - (b) Logbook, sign-in, and applicant identification check performed by the CTD.

- (c) Computer sign-on restrictions controlled by the Operations Standards Section, AVN-131.
  - (d) On-line access to the question banks and statistics only by persons authorized by FAA directive. This includes the replacement or revision of test questions by AVN-131.
  - (e) Production of unique tests of equal statistical value.
- (5) The capability for on-line registration of applicants. The registration items will include at least the following:
- (a) Date of test.
  - (b) Applicant's full name.
  - (c) Applicant's current mailing address.
  - (d) Applicant's description (height, weight, color of hair, color of eyes, and sex).
  - (e) Applicant's social security number (with provision for privacy statement).
  - (f) Applicant's date of birth.
  - (g) Applicant's birthplace.
  - (h) Applicant's citizenship.
  - (i) Test program/test series identification.
  - (j) Type of test (initial test or retest).
  - (k) Endorsing instructor certificate number.
  - (l) Approved course (name of school, school number, school location, and graduation date).
  - (m) Test monitor identification.
- (6) A dual method (keyboard and touch screen) for entering answers to test questions.
- (7) A method whereby an applicant can record answers for test questions and also record specific question numbers. This feature enables an applicant to return to a question for the purpose of review or possible answer change.
- (8) The capability of providing an introductory lesson or sample test to familiarize applicants with testing procedures.
- (9) The capability of displaying a multiple-choice question on the computer screen in one frame.
- (10) A computer screen display of the time remaining for the completion of the test.
- (11) A "HELP" function which permits the applicant to review test questions and optional alternatives.
- (12) The capability of providing applicant score at the conclusion of a test session using AC Form 8080-2, Airman Written Test Report. Both section and overall scores shall be available.
- (13) The capability of providing all individual and compiled reports within 24 hours, or on the first business day after an applicant is administered a test.

- (14) The capability of providing for the automated data transfer of applicant test results to an IBM PC/AT/PS compatible machine at the Mike Monroney Aeronautical Center, for transfer to the existing testing data base.
- (15) The capability of monitoring applicant records for a prescribed period of time. Records shall be maintained with expiration dates, at which time they will be purged by the Airman Certification Branch, AVN-460. Completed files may, at the option of AVN-460, be purged at the end of each calendar month. Completed applicant files must include:
  - (a) All applicant registration items.
  - (b) All applicant score information, both by section and total.
  - (c) Test time consumed by the applicant.
  - (d) Test site (address and room number).
  - (e) Complete record of the applicant's test showing: question codes, the sequence in which questions were presented, applicant response to each question, and whether the applicant's response was correct.
- (16) The capability of providing search routines to locate individual applicant records or to sort files relative to individual applicants.
- (17) The capability of providing a statistical evaluation of a whole test to include:
  - (a) Score distribution.
  - (b) Average score.
  - (c) Average score of each test section.
  - (d) Standard deviation.
  - (e) Pass/fail ratio.
  - (f) Measurement of reliability, measurement error, skewness, and kurtosis.
- (18) The capability of providing a statistical evaluation of the individual test questions to include:
  - (a) Number of responses.
  - (b) Number of applicants selecting each response.
  - (c) "P" value.
  - (d) Point biserial coefficient of correlation of each item.
- (19) The capability of measuring the flow of enrollment into the system and the number of tests administered in the most recent 12 months including a breakdown by geographical area.
- (20) The capability of providing up to 10 major sections per test, each of which will be scored and reported to the applicant at the conclusion of the test via a copy of AC Form 8080-2.
- (21) The capability of providing up to 40 defined, sub-section, selection categories.
- (22) The capability of selecting questions on a random basis.
- (23) The capability of recognizing repeat questions.

- (24) The capability of generating tests which provide "P" value for each major section and which will automatically reject and reformat if the section does not meet the criteria selected by AVN-130.
- (25) The capability of overall evaluation of the test for "P" value and reformatting if the test does not meet the criteria selected by AVN-130.

The CTD will be knowledgeable in the following areas:

- (1) All computer uses as they relate to the program.
- (2) The determination of applicant eligibility for knowledge tests in the various airmen certification and rating areas.
- (3) Pertinent sections of FAR Parts 61, 63, 65, and 143, as they apply to airmen knowledge requirements.
- (4) Pertinent sections of Order 8080.1D, as they relate to the computer-assisted airmen knowledge testing program.
- (5) Security procedures that apply to the computerized testing program.
- (6) The functions of AVN-460, and the input which the computerized testing program will provide.
- (7) The functions of AVN-130 as they relate to the development of airmen knowledge tests.
- (8) The responsibility of AVN-130 for the surveillance of the program.

The duties and responsibilities of the CTD are:

- (1) Providing testing site with facilities that meet the approval of and standards set by AVN-130 and as outlined in Order 8080.1D.
- (2) The determination of applicant eligibility.
- (3) Entering essential applicant data into the computer on-line registration system.
- (4) Briefing applicants on computer-assisted testing procedures.
- (5) The administration of sample tests to applicants.
- (6) The administration of official FAA certification tests to applicants.

Those desiring to apply for computer testing designee status must apply by letter of application to:

Aviation Standards National Field Office  
 Examinations Standards Branch (AVN-130)  
 P.O. Box 25082  
 Oklahoma City, OK 73125

The letter shall include:

- (1) The locations of the testing facilities and the type, make, and model of all computer related equipment to be used.
- (2) The extent to which the established standards and technical specification criteria can be met.
- (3) Provisions for overall test security.
- (4) Depth and experience in national training and computer testing.

Prior to the issuance of an authorization letter, a representative from AVN-130 will observe the simulated administration of a test by computer and determine that the integrity of the test administration process is not compromised. If the computer testing designee applicant's capabilities meet the standards and technical specification criteria outlined in this action notice, AVN-130 will issue a letter authorizing the administration of specific tests via the computer medium.

AVN-130 will issue the CTD a copy of Order 8080.1D and other material that is specifically related to the duties and responsibilities of CTD's. AVN-130 will give the CTD training in the following general and specific areas:

(1) General Areas.

- (a) Direction and Guidance. Information relating to FAA policy and procedures.
- (b) Availability. Services the CTD is expected to provide the public.
- (c) Professional Conduct. Computer testing designee responsibility as a representative of the FAA.

(2) Specific Areas.

- (a) Security as it concerns the testing process.
- (b) Identification of applicants.
- (c) Eligibility of applicants.
- (d) Substitution of credit.
- (e) Selection of test.
- (f) Time allowed for tests.
- (g) Use of reference materials and aids.
- (h) Materials furnished the applicants.
- (i) Briefing of applicants concerning computer-assisted knowledge testing procedures.
- (j) Visual surveillance of applicants while testing is being conducted.
- (k) Handling applicants' comments on tests.
- (l) Validity period for written tests.
- (m) Issuance of AC Form 8080-2.
- (n) Sections of Order 8080.1D, which are related to the computer-assisted knowledge testing program.

AVN-130 will give CTD's recurrent training on a biennial-scheduled basis. In addition, CTD's will be given special training following any major change in testing procedures. Minor changes of FAA policy or procedures concerning computer-assisted testing will be transmitted to all CTD's in writing.

AVN-130 personnel will make periodic inspections of computer testing designee testing facilities to determine that:

- (1) The CTD is following established procedures.
- (2) The integrity of the testing process is not being compromised.
- (3) Security procedures are being followed.

- (4) Space and physical facilities are conducive to good test administration.
- (5) Adequate visual surveillance is provided during testing.
- (6) The proper tests are being administered.
- (7) Adequate records are being maintained.
- (8) There is no evidence of misconduct on the part of CTD's or applicants.
- (9) Adequate service to the public is being provided.

Testing areas may be added to, or deleted from, the computer testing designee's original letter of authorization. Such changes may be made as a result of computer testing designee request or AVN-130 decision. In the event a change is made, AVN-130 will issue a new letter of authorization to the CTD.

A computer testing designee's authorization expires at the end of the 24th month after the month of issue unless surrendered or canceled prior to that expiration date; however, the authorization may be renewed as outlined in this action notice.

To ensure continuity of testing, the CTD should apply for renewal of authorization, at least 30 days before the current expiration date, as outlined in this action notice.

A CTD may surrender the authorization at any time. The CTD should give AVN-130 as much advanced notice as possible. This notice should be in writing. All materials related to the computer-assisted testing program, which have been issued to the CTD by AVN-130, shall be returned to that office no later than 5 working days following the date of authorization termination by certified mail.

When cancellation of a computer testing designee's authorization becomes necessary, notification shall be accomplished by means of a registered letter from the manager of the Examinations Standards Branch, AVN-130. Upon cancellation of authorization, the CTD shall surrender the most recent letter of authorization and all materials related to the computer-assisted testing program, which have been issued by AVN-130. The letter and testing materials shall be returned to AVN-130 no later than 5 working days following the date of authorization cancellation by certified mail. AVN-130 may cancel the computer testing designee's authorization for any of the following reasons:

- (1) Evidence of misconduct.
- (2) Evidence that the airmen testing process is being compromised.
- (3) Inability to maintain the equipment facilities and service requisites as established in Order 8080.1D and this action notice.
- (4) Change in FAA policy regarding the airmen testing program.

For further information concerning the contents of this action notice, contact the Examinations Standards Branch, AVN-130, (405) 680-4149 or FTS 747-4149.

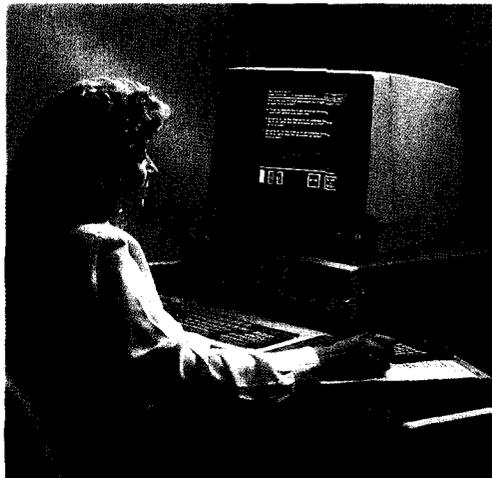


Robert L. Goodrich

# Computer-Based Testing from TRO. The Choice of Professionals.

Professional certification and licensing has become synonymous with quality for many organizations, government agencies, and associations. And, for more than a decade, PLATO® computer-based testing from The Roach Organization, Inc. (TRO) has met the professional certification and licensing needs of organizations throughout the United States and Canada.

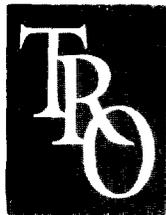
Working in partnership with the National Association of Securities Dealers (NASD), TRO administers over 800,000 hours of customized, computer-based examinations each year through an extensive network of more than 50 PLATO Professional Development Centers staffed with full-time proctors.



This partnership provides clients with state-of-the-art testing services based on experience and technology unmatched by any other company in the field.

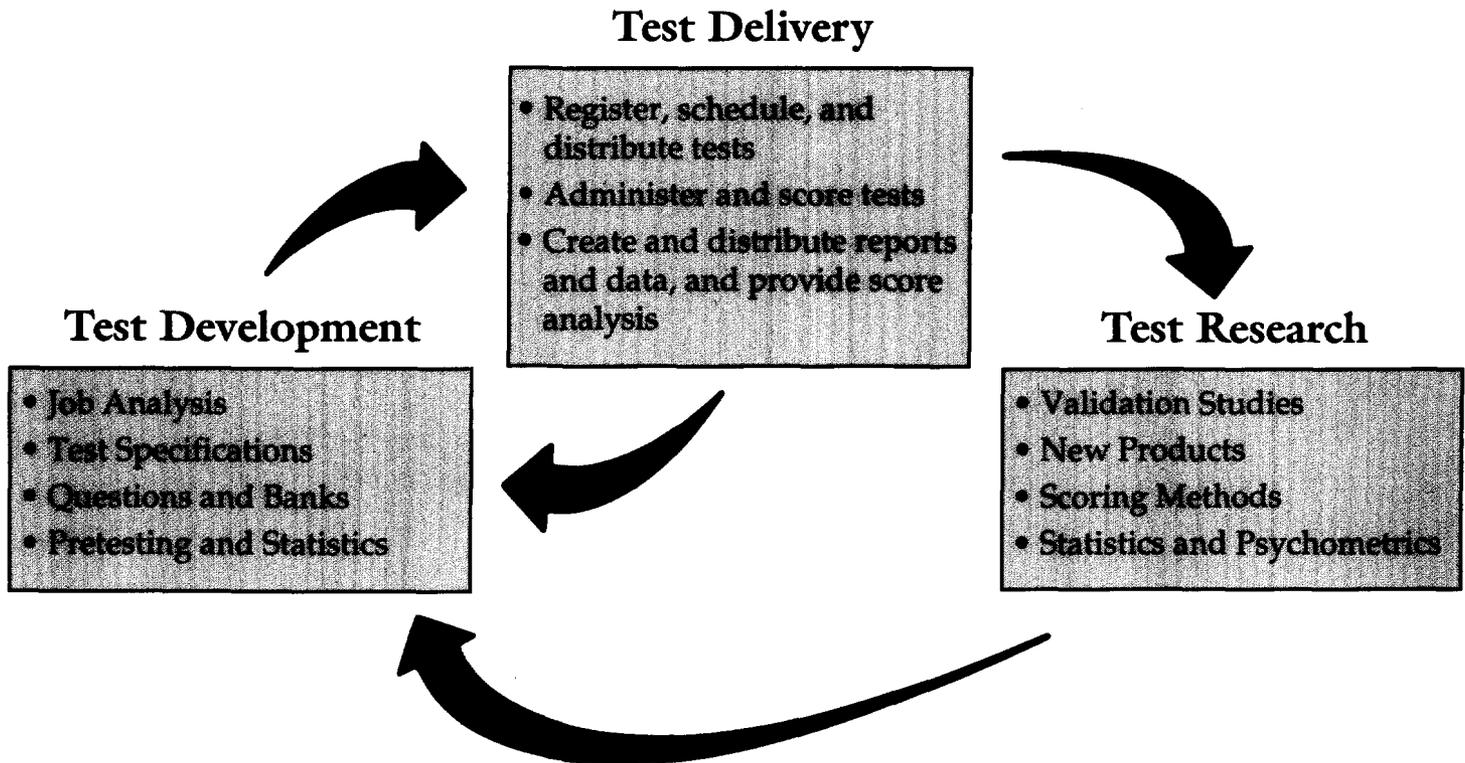
The PLATO testing system was originally developed nearly 15 years ago to meet the complex licensing needs of the NASD. Today, TRO continues to support NASD testing in addition to providing full-service, computer-based testing capabilities to a list of distinguished professional organizations, including:

- Federal Aviation Administration
- The American College
- American Home Economics Association
- The American Registry of Diagnostic Medical Sonographers
- Registry of Financial Planning Practitioners
- Banyan Systems
- Novell, Inc.
- Real Estate Appraisers
- Numerous State Licensing Authorities



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# Full-Service Testing Capabilities



As professional organizations face growing populations of test candidates, questions arise as to how to develop and deliver strategically sound tests in a consistent and nonbiased manner, while maintaining strict integrity and security in the scoring and reporting processes.

From test research, to test development, to delivery, scoring, and reporting, TRO will work with you to custom design state-of-the-art, computerized tests to meet the specifications and standards defined by your organization.

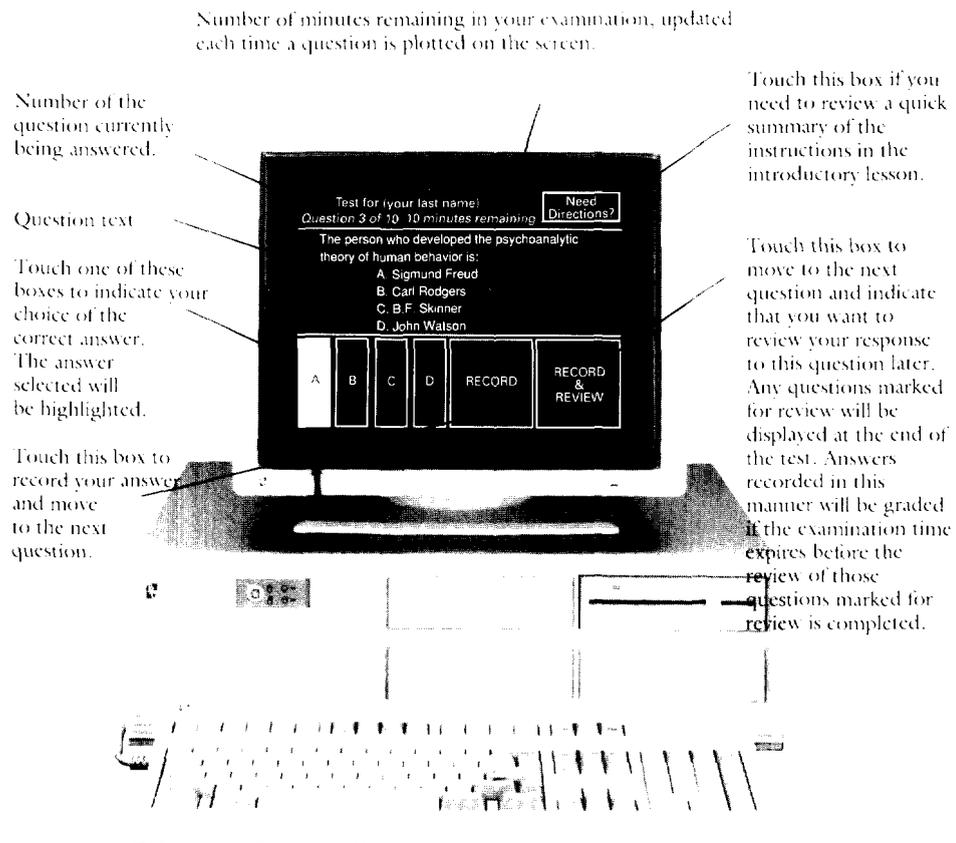
Our experienced test developers will conduct extensive research to support the overall integrity and validity of your tests.

Once complete, this research data is used to develop tests which incorporate the most effective testing strategies to accomplish your objectives (e.g., forms testing, randomly generated testing, or computer adaptive testing).

Tests are then stored on TRO's central computer database and are delivered to the appropriate testing center via a telecommunications link.

Scoring and reporting procedures, as defined by your organization, are strictly and securely monitored and adhered to by trained testing personnel.

# A Convenient, Easy to Use Testing System



Convenience is one of the major advantages of computerized testing for test candidates. With more than 50 PLATO® Professional Development Centers located throughout the United States and Canada, candidates can arrange to take tests at times and locations convenient to their schedules.

By simply placing a toll-free phone call to TRO Central Registration, the candidate registers for the test and pays the appropriate test fee via credit card.

Taking a test on the PLATO system is easy! Each PLATO Professional Development Center has been specifically designed with modular testing stations to provide a comfortable, nonthreatening and controlled environment.

Upon arrival at the Center, the candidate is registered and asked for appropriate identification. Before starting the test, an introductory lesson familiarizes the candidate with the operation of the PLATO system and the procedures used in completing the test. Test questions may be answered by either a keypress or by touching the appropriate area on the workstation screen.

# Faster Qualification, Greater Security

Testing on the PLATO® system can dramatically shorten the qualification timeframe for test candidates. Waiting for test results is eliminated; grading is immediate for the candidate and customized reports are generated within a day for your organization. The time savings can be critical to your operations; the candidate can often begin his or her job in days instead of weeks!

The highest security standards are maintained before, during, and after candidate testing. System security includes encryption and sign-on limitations to provide multi-layered security measures. TRO's security procedures have been refined in nearly 15 years of service unblemished by security breaches.

The integrity of individual results is strictly maintained. Each candidate is required to present two forms of identification upon arrival at the PLATO Professional Development Center. Tests are administered under the security of trained proctors and results are kept as confidential as you require.

Candidate examination records are consolidated and securely kept in the central computer database. Examination statistics are continuously maintained and updated to provide you with the information you need to ensure the validity and quality of your tests on an ongoing basis.

## The Roach Organization, Inc. Certification & Testing Services

### Central Registration/ Corporate Headquarters

4660 West 77th Street  
Edina, Minnesota 55435  
Registration - (800) 869-1100  
Phone - (612) 832-1000  
Fax - (612) 832-1290

### Executive Offices

150 North Martingale Road  
Suite 700  
Schaumburg, Illinois 60173  
Phone - (708) 517-5100  
Fax - (708) 517-2635

### Canadian Headquarters

W. R. Roach & Associates (Canada) Ltd.  
110 Bloor Street West  
Suite 204  
Toronto, Ontario M5S 2W7  
Phone - (416) 964-8845  
Fax - (416) 964-0588

### PLATO PROFESSIONAL DEVELOPMENT CENTER LOCATIONS

• Birmingham, AL • Little Rock, AR • Phoenix, AZ • Irvine, CA • Los Angeles, CA • San Diego, CA • San Francisco, CA • Denver, CO • Hartford, CT • Norwalk, CT  
• Miami, FL • Orlando, FL • Atlanta, GA • Des Moines, IA • Bloomington, IL • Chicago, IL • Indianapolis, IN • Louisville, KY • New Orleans, LA • Boston, MA  
• Baltimore, MD • Detroit, MI • Minneapolis, MN • Kansas City, MO • St. Louis, MO • Charlotte, NC • Omaha, NE • West Orange, NJ • Albuquerque, NM  
• Melville, NY • New York, NY • Rochester, NY • Cincinnati, OH • Cleveland, OH • Columbus, OH • Oklahoma City, OK • Portland, OR • Allentown, PA  
• Harrisburg, PA • Philadelphia, PA • Pittsburgh, PA • Memphis, TN • Nashville, TN • Dallas, TX • Houston, TX • San Antonio, TX • Salt Lake City, UT  
• Alexandria, VA • Norfolk, VA • Richmond, VA • Roanoke, VA • Seattle, WA • Milwaukee, WI • Toronto, Ontario, Canada