

STATE OF FLORIDA  
DIVISION OF ADMINISTRATIVE HEARINGS

RASIK V. CHOKSHI, )  
 )  
 Petitioner, )  
 )  
 vs. ) Case No. 00-1942  
 )  
 DEPARTMENT OF BUSINESS AND )  
 PROFESSIONAL REGULATION, )  
 FLORIDA BOARD OF PROFESSIONAL )  
 ENGINEERS, )  
 )  
 Respondent. )  
 \_\_\_\_\_ )

RECOMMENDED ORDER

Pursuant to notice, a hearing was held in this case in accordance with Section 120.57(1), Florida Statutes, on August 30, 2000, by video teleconference at sites in West Palm Beach and Tallahassee, Florida, before Stuart M. Lerner, a duly-designated Administrative Law Judge of the Division of Administrative Hearings.

APPEARANCES

For Petitioner: Rasik V. Chokshi, pro se  
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For Respondent: William H. Hollimon, Esquire  
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STATEMENT OF THE ISSUE

Whether Petitioner is entitled to additional credit for his solutions to three problems on the Principles and Practice of

Engineering portion of the engineering licensure examination administered on October 29, 1999, by the National Council of Examiners for Engineers and Surveyors.

PRELIMINARY STATEMENT

By letter dated May 3, 2000, to the Florida Board of Professional Engineers (Board), Petitioner requested a "formal hearing" to contest the failing score (69) that he received on the October 29, 1999, Principles and Practice of Engineering portion of the engineering licensure examination administered by the National Council of Examiners for Engineers and Surveyors. In his letter, Respondent stated that he was specifically challenging the scores he received on Problems 141 (claiming he should have received "at least 6 points instead of 4 points" for his solution to this problem), 144 (claiming he should have received "4 points instead of 2 points" for his solution to this problem), and 147 (claiming he should have received "4 points instead of 2 points" for his solution to this problem).

On June 6, 2000, the Board referred the matter to the Division of Administrative Hearings (Division) for the "assign[ment of] an Administrative Law Judge to conduct a hearing pursuant to Section 120.57(1), Florida Statutes."

As noted above, the hearing was held on August 30, 2000. At the hearing, Petitioner testified on his own behalf, and he also presented the (expert) testimony of Jitendra Parikh, P.E. In addition, he offered into evidence two exhibits (Respondent's

Exhibits 1 and 2), both of which were admitted. Respondent presented no testimonial evidence; however, it did offer into evidence 16 exhibits, all of which were admitted.

At the conclusion of the evidentiary portion of the hearing, the undersigned announced, on the record, that post-hearing submittals had to be filed within ten days of the date of the filing of the transcript of the hearing. The hearing Transcript (consisting of one volume) was filed on September 29, 2000.

Petitioner and Respondent timely filed their post-hearing submittals on September 18, 2000, and October 9, 2000, respectively. These post-hearing submittals have been carefully considered by the undersigned.

#### FINDINGS OF FACT

Based upon the evidence adduced at hearing and the record as a whole, the following findings of fact are made:

1. On October 29, 1999, as part of his effort to obtain a Florida engineering license, Petitioner sat for the Principles and Practice of Engineering Examination (Examination). This is a national examination developed and administered by the National Council of Examiners for Engineers and Surveyors (NCEES). Petitioner chose to be tested in mechanical engineering.

2. Petitioner received a raw score of 47 on the Examination. For the mechanical engineering specialization, a raw score of 47 converts to a score of 69. To pass the Examination, a converted score of 70 is needed.

3. Petitioner formally requested (in writing, by letter dated March 13, 2000) that his solutions to Problems 141, 144, and 147 on the Examination be rescored. Petitioner's written request was made to the Board's "Legal Section," which forwarded it to the NCEES.

4. The NCEES's rescoring of Petitioner's solutions to Problems 141, 144, and 147 resulted in his receiving no additional points.

5. The Board received the NCEES's rescoring results on or about April 25, 1999.

6. After receiving a letter from Petitioner (dated May 3, 2000) requesting a "formal hearing," the Board referred the matter to the Division.

7. Problems 141, 144, and 147 were worth ten raw points each.

8. Petitioner received four raw points for his solution to Problem 141.

9. In his solution to Problem 141, Petitioner failed to take into consideration bending stresses and loads. Therefore, in accordance with the requirements and guidelines of the NCEES scoring plan for this problem, the highest raw score that he could have received for his solution to this problem was a four, which is the score he received.

10. Petitioner received a raw score of two for his solution to Problem 144.

11. In rescoring Petitioner's solution to this problem, the NCEES rescorer made the following "comments":

A correct solution [to this problem] must include

1. an energy balance on the open feedwater heater to determine the fraction of flow through turbine  $T_1$  that is extracted and taken to the open feedwater heater.
2. a correct equation for determining the specific work developed by the two turbines on the basis of one pound entering turbine  $T_1$ . The equation the examinee has written assumes the same flow through both turbines.
3. determination of the mass rate of flow ( $m_1$ ) at the inlet to turbine  $T_1$ . This is determined by dividing the net power by the specific net work.
4. determining the rate at which heat is added in the steam generator and reheater.
5. finally, dividing the rate at which heat is added in the steam generator by the heating value times 0.75 with the appropriate conversion factors.

The examinee has used the net power (200 MW or  $200 \times 10^5$ ) as the rate at which heat is added in the steam generator and reheater. This is incorrect.

The scoring plan states

2 RUDIMENTARY KNOWLEDGE

. . . OR-(3) determines tons/day =  $W_{net}/7650$ ,  $W_{net} = (h_1 - h_2) + (h_3 - h_4)$

This is what the examinee has done.

Based on the scoring plan and the above analysis, a score of 2 is recommended.

There has been no showing that the foregoing "analysis" was in any way flawed or that application of the requirements and guidelines of the NCEES scoring plan for this problem should have resulted in Petitioner receiving a raw score higher than two for his solution to Problem 144.

12. Petitioner received a raw score of four for his solution to Problem 147.

13. In rescoring Petitioner's solution to this problem, the NCEES rescorer made the following "comments":

The examinee used an incorrect temperature difference in [his] calculation of the heat transferred by convection and radiation from the outer surface of the pipe.

Most of the examinee's work for requirement (b) was not needed. In doing that unnecessary work, however, [he] made two significant errors: 1. [He] evaluated a radiation exchange between the steam inside the pipe and the environment surrounding the pipe. The pipe shields the environment surrounding the pipe from the steam. 2. The examinee's equation "Total heat Loss = Conductive + Radiation" is not satisfactory.

In attempting to evaluate the heat transfer from the insul[a]ted pipe, [he] assumed that the outer surface heat transfer coefficient was very high; 3.0 is not high.

The examinee made no attempt to evaluate the payback period for the insulation.

There has been no showing that the foregoing analysis was in any way flawed.

14. For the errors made by Petitioner in his solution to Problem 147, a 50% "grade reduction" was warranted pursuant to

the "error analysis" portion of the NCEES scoring plan for this problem. 1/ The remaining portions of the scoring plan for Problem 147 provided as follows:

10: Essentially complete and correct solution. May have one or two minor math, data, or chart reading errors. . . .

Grade of 8:

A grade of 8 will result from having any combination of the above listed errors which causes a grade reduction between 10% and 50%.

A Grade of 6:

A grade of 6 will result from having any combination of the above listed errors which causes a grade reduction between 30% and 50%.

Grade of 4: 2/

A grade of 4 will result from having any combination of the above listed errors which causes a grade reduction between 50% and 70%.

Grade of 2:

A grade of 2 will result from having any combination of the above listed errors which causes a grade reduction between 70% and 90%.

Grade of Zero:

Nothing presented that warrants a grade of at least 10%.

15. It is unclear from a reading of the NCEES scoring plan for Problem 147 whether a grade reduction of 50% should result in a raw score of four or six. The plan is ambiguous in this regard. While it may be reasonable to interpret the plan as requiring that a raw score of six be given where there is a grade reduction of 50%, the plan is also reasonably susceptible to the

interpretation that a 50% grade reduction should result in a raw score of four, the score Petitioner received for his solution to Problem 147. It therefore cannot be said that the scoring of his solution to this problem was inconsistent with the problem's scoring plan, as reasonably construed.

#### CONCLUSIONS OF LAW

16. A person seeking to become licensed by the Department of Business and Professional Regulation (Department) to practice engineering in the State of Florida must take and pass a licensure examination (provided that person is not entitled to licensure by endorsement). Sections 471.013 and 471.015, Florida Statutes.

17. The required examination is described in the Board's Rules 61G15-21.001 and 61G15-21.002, Florida Administrative Code, which provide, in pertinent part, as follows:

61G15-21.001 Written Examination Designated;  
General Requirements.

(1) The Florida Board of [Professional] Engineers hereby determines that a written examination shall be given and passed prior to any applicant receiving a license to practice as a professional engineer . . . . The examination shall be provided by the National Council of Examiners for Engineers and Surveyors (NCEES). 3/ The examination consists of two parts, each of eight hours. Candidates are permitted to bring certain reference materials, slide rules and certain calculators. A list of approved reference materials and calculators will be provided to all candidates prior to each examination. All materials including pens and pencils are to be furnished by the applicant. National examination security requirements as set



forth by the NCEES shall be followed throughout the administration of the examination. . . .

61G15-21.002 Areas of Competency and Grading Criteria.

(1) The Engineering Fundamentals Examination shall include all questions and problems on subjects normally connected with the basic fundamentals of engineering education. The topics which will usually be treated in this section are as follows: mathematics, mathematical modeling of engineering systems, nucleonics and wave phenomena, chemistry, statistics, dynamics, mechanics of materials, fluid mechanics, thermodynamics/heat transfer, computer programming, electrical circuits, statics, structure of matter, engineering mechanics, electronics and electrical machinery.

(2) Part two of the examination shall be based on Professional Practice and Principles and shall be devoted primarily to the field of the applicant's finding solutions to problems designed to test the applicant's ability to apply acceptable engineering practice to problems which are representative of his discipline. Applicants for registration must select one of the listed specializations in which to be examined. The Board may also authorize examinations in other engineering disciplines when the Board determines that such disciplines warrant the giving of a separate examination in terms of cost effectiveness and acceptability in the profession of engineering.

(3) In Part Two of the examination the applicant will usually be required to solve from seven to ten problems which the applicant may choose from approximately twenty problems drawn from a test pattern generally set forth as follows: . . .

(b) Civil/Sanitary -- Highway, Structural, Sanitary Planning, Fluids, Soils, Economics, Water Control and Resources, Treatment Facility Design, Fluid Flow Hydraulics,

Planning Analysis, System Design, Chemical-Bio Problems, Materials Sections, and Economics. . . .

18. The Board's Rules 61G15-21.003 and 61G15-21.004, Florida Administrative Code, address the grading of the licensure examination. These rules provide, in pertinent part, as follows:

61G15-21.003 Grading Criteria for the Essay Portion of Examination.

(1) Insofar as the essay portion of the examination is not machine graded the Board deems it necessary to set forth the following guidelines upon which grades for the essay portion shall be based. Grades on the essay portion of the examination will be based upon the application of good engineering judgment, the selection and evaluation of pertinent information and the demonstration of the ability to make reasonable assumptions when necessary. Answers may vary due to assumptions made. Partial credit will normally be given if correct fundamental engineering principles are used, even though the answer may be incorrect. All grading will be done by an expert committee provided by the national testing service supplying the examination. 4/

(2) An applicant must follow all pertinent instructions on the examination booklet and the solution pamphlet. The applicant shall indicate which problems he has solved and is submitting for credit in the designated boxes on the front cover of the solution pamphlet. If an applicant fails to indicate which problems he is submitting for credit in the designated boxes, only the first four problems worked in said pamphlet shall be graded.

61G15-21.004 Passing Grade. . . .

(2) A passing grade on Part Two of the examination is defined as a grade of 70 or better. The grades are determined by a group of knowledgeable professional engineers, who

are familiar with engineering practice and with what is required for an applicable engineering practice and with what is required for an applicable engineering task. These professional engineers will establish a minimum passing score on each individual test item (i.e., examination problem). An Item Specific Scoring Plan (ISSP) will be prepared for each examination item based upon the NCEES standard scoring plan outline form. An ISSP will be developed by persons who are familiar with each discipline including the item author, the item scorer, and other NCEES experts. On a scale of 0-10, six (6) will be a minimum passing standard and scores between six (6) and ten (10) will be considered to be passing scores for each examination item. A score of five (5) or lower will be considered an unsatisfactory score for that item and the examinee will be considered to have failed that item. To pass, an examinee must average six (6) or greater on his/her choice of eight (8) exam items, that is, the raw score must be forty-eight (48) or greater based on a scale of eighty (80). This raw score is then converted to a base 100 on which, as is noted above, a passing grade will be seventy (70).

19. The Board's Rule 61G15-21.006, Florida Administrative Code, provides that "[e]xam review procedures are governed by rule 61-11.017, F.A.C." and that "[a]ll reviews of answers, questions, papers, grades, and grading key shall be at a mutually convenient time and subject to national testing security requirements in order to insure the integrity of the examination."

20. Rule 61.017, Florida Administrative Code, is a Department rule which provides, in pertinent part, that "[r]eview of examinations developed by or for a national council, association, society (herein after referred as national

organization) shall be conducted in accordance with national examination security guidelines."

21. In the instant case, after receiving a failing score on the Principles and Practice of Engineering portion of the NCEES-administered and graded engineering licensure examination and not receiving any additional points upon subsequent review and rescoring, Petitioner requested a "formal hearing" to contest his failing score.

22. The Board (acting through the Florida Engineers Management Corporation, a Florida not-for-profit corporation created pursuant to Section 471.038, Florida Statutes, "to provide administrative, investigative, and prosecutorial services" to the Board) granted Petitioner's request for a hearing and referred the matter to the Division for hearing.

23. In those instances where a State of Florida licensing board or agency is empowered to alter a candidate's failing examination score, the candidate is entitled to a hearing, pursuant to Chapter 120, Florida Statutes, to contest his or her failing score. At the hearing, the candidate bears the burden of establishing, by a preponderance of the evidence, that his or her failing score was the product of arbitrary or otherwise improper or erroneous grading. See Harac v. Department of Professional Regulation, Board of Architecture, 484 So. 2d 1333, 1338 (Fla. 3d DCA 1986) ("Ordinarily one who fails a licensure examination would shoulder a heavy burden in proving that a

subjective evaluation by an expert is arbitrary."); Florida Department of Health and Rehabilitative Services v. Career Service Commission, 289 So. 2d 412, 414 (Fla. 4th DCA 1974)(1974)("[T]he burden of proof is on the party asserting the affirmative on an issue before an administrative tribunal. . . . 'As a general rule the comparative degree of proof by which a case must be established is the same before an administrative tribunal as in a judicial proceeding--that is, [a] preponderance of the evidence. It is not satisfied by proof creating an equipoise, but it does not require proof beyond a reasonable doubt.'"); Section 120.57(1)(j), Florida Statutes ("Findings of fact shall be based upon a preponderance of the evidence, except in penal or licensure disciplinary proceedings or except as otherwise provided by statute, and shall be based exclusively on the evidence of record and on matters officially recognized.").

24. Petitioner failed to submit such proof in the instant case.

25. In attempting to demonstrate that he should have received higher scores for his solutions to Problems 141, 144, and 147, Petitioner presented his own testimony (which he was free to do notwithstanding his interest in the outcome of the case /5 ), plus the testimony of an independent expert witness, Jitendra Parikh, P.E. 6/ Significantly, in giving their opinions regarding the scoring of Petitioner's solutions to the

problems at issue, neither Petitioner, nor Mr. Mr. Parikh, made any reference to the guidelines and requirements of the NCEES scoring plans for these problems. They based their opinions upon, not these guidelines and requirements, but rather their own personal views as to how points for solutions to these problems should have been awarded. Their testimony, whether viewed in isolation or together with the rest of the record evidence (which consisted exclusively of documentary evidence), fails to establish that, under no reasonable construction of the NCEES scoring plans for Problems 141, 144, and 147, would the scores given to Petitioner for his solutions to these problems be justified.

26. Moreover, even if Petitioner had persuaded the undersigned that he (Petitioner) should have received higher scores from the NCEES for these solutions, the undersigned would still not recommend that the Board grant Petitioner the relief he is seeking in this case. This is because the Examination is "an examination developed by or for a national board, council, association, or society," within the meaning of the Department's Rule 61-11.012(1), Florida Administrative Code, and, pursuant to that rule provision, the Board must "accept the development and grading of such [an] examination without modification." See also Department Rule 61-11.010(1)(a), Florida Administrative Code ("National Examinations shall be graded solely and exclusively by the National examination provider or its designee. National

examinations shall include those developed by or for national boards, councils, associations or societies."); Board Rule 61G15-21.003(1), Florida Administrative Code ("All grading will be done by an expert committee provided by the national testing service supplying the examination.").

27. In view of the foregoing, Petitioner's challenge to the scores he received from the NCEES for his solutions to Problems 141, 144, and 147 of the Principles and Practice of Engineering portion of the October 29, 1999, engineering licensure examination should be rejected.

#### RECOMMENDATION

Based on the foregoing Findings of Fact and Conclusions of Law, it is

RECOMMENDED that a final order be entered rejecting Petitioner's challenge to the failing score he received from the NCEES on the Principles and Practice of Engineering portion of the October 29, 1999, engineering licensure examination.

DONE AND ENTERED this 13th day of October, 2000, in  
Tallahassee, Leon County, Florida.

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STUART M. LERNER  
Administrative Law Judge  
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Filed with the Clerk of the  
Division of Administrative Hearings  
this 13th day of October, 2000.

ENDNOTES

1/ Respondent's expert, Ben Cowart, P.E., whose written report containing his opinion concerning the scoring of Petitioner's solution to Problem 147 was received into evidence (without objection) as Respondent's Exhibit 15 (but who did not testify at hearing), stated in his report that "[t]he total score reduction for problem #147 should be -50%." At hearing, Petitioner testified that he did not "have a problem agreeing with him" (Mr. Cowart) regarding this matter.

2/ The scoring plan for this problem does not authorize an award of a "grade of 5."

3/ A licensing board within the Department of Business and Professional Regulation, such as the Board of Professional Engineers, is authorized by Section 455.217(1)(d), Florida Statutes, to "approve by rule the use of any national examination which the department has certified as meeting requirements of national examinations and generally accepted testing standards pursuant to department rules." A "national examination," as that term is used in Section 455.217, Florida Statutes, is defined in Rule 61-11.015, Florida Administrative Code, as follows:

(1) . . . To ensure compliance, the following definition of a national examination shall be applied when using a national examination.

(2) A national examination is an examination developed by or for a national professional



association, board, council or society (hereinafter referred to as organization) and administered for the purpose of assessing entry level skills necessary to protect the health, safety and welfare of the public from incompetent practice.

(a) The purpose of the examination shall be to establish entry level standards of practice that shall be common to all practitioners.

(b) The practice of the profession at the national level must be defined through an occupational survey with a representative sample of all practitioners and professional practices.

(c) The examination for licensure must assess the scope of practice and the entry skills defined by the national occupational survey.

(3) The national organization must be generally recognized by practitioners across the nation in the form of representatives from the State Boards or shall have membership representing a substantial number of the nation's practitioners who have been licensed through the national organization examination.

(4) The national organization shall be the responsible body for overseeing the development and scoring of the national examination.

(5) The national organization shall provide security guidelines for the development and grading of the national examination and shall oversee the enforcement of these guidelines.

4/ Pursuant to the Department's Rule 61-11.010(1)(a), Florida Administrative Code, "National Examinations shall be graded solely and exclusively by the National examination provider or its designee."

5/ See Martuccio v. Department of Professional Regulation, 622 So. 2d 607, 609-10 (Fla. 1st DCA 1993).

6/ Respondent, on the other hand, presented no expert or other testimony; however, among the 16 exhibits it offered into evidence (all of which were admitted without objection) were the "rescoring results" containing the "comments" made by those who rescored Petitioner's solutions to Problems 141, 144, and 147 (Respondent's Exhibit 3) and the written reports of the expert Respondent retained for this case, Ben Cowart, P.E., containing his opinions concerning the scores Petitioner should have received for these solutions (Respondent's Exhibits 13, 14, and 15).

COPIES FURNISHED:

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NOTICE OF RIGHT TO SUBMIT EXCEPTIONS

All parties have the right to submit written exceptions within 15 days from the date of this recommended order. Any exceptions to this recommended order should be filed with the agency that will issue the final order in this case.