

**STATE OF ALABAMA
BOARD OF LICENSURE FOR
PROFESSIONAL ENGINEERS AND
LAND SURVEYORS**

IN RE THE MATTER OF:

HAMDAN M. ALYAMI

CASE NO. 2013-05-C

FINAL ORDER

On March 12, 2013, the Alabama Board of Licensure for Professional Engineers and Land Surveyors (hereinafter referred to as "Board") convened for an Administrative Hearing concerning the allegations filed against Hamdan M. Alyami (hereinafter referred to as "Respondent"). The Board was represented by Mr. Benjamin Albritton, Board Counsel. Administrative Law Judge Dana A. Billingsley presided over the Hearing.

After hearing the testimony of all the witnesses presented by the Board Investigative Committee and after considering all the evidence presented in the above-referenced case, Administrative Law Judge Dana H. Billingsley proposed the following Findings of Fact, Conclusions of Law, and Conclusion and Recommendation.

FINDINGS OF FACT

1. Respondent Hamdan M. Alyami is an electrical engineering student at the University of South Alabama ("USA") in Mobile, Alabama. On April 4, 2012 Mr. Alyami submitted an Application for the Fundamentals of Engineering ("FE") Examination to the Board, which examination was administered at USA on October 27, 2012. The FE Examination is developed, copyrighted and graded by the National Counsel of Examiners for Engineering and Surveying ("NCEES") and is administered to graduating engineering students to determine their knowledge of the basics of engineering before engaging in the practice of engineering under a licensed Professional Engineer.
2. The application includes an Affidavit Certification, Authorization and Release that provides, "The Code of Alabama 1975, Section 34-11-11 states that the Board shall have the

power to take disciplinary action against any licensee, engineer intern, land surveyor intern or firm for the practice of fraud or deceit in obtaining a certificate.” By signing the application, the applicant also “subscribe[s] to and agree[s] to conform with the Rules of Professional Conduct set forth in the Administrative Code, Rule 330-x-14.”

3. On October 27, 2012, Respondent arrived at Shelby Hall on the USA campus to take the examination and was seated in the sixth row in Room 2119. Room 211 has stadium seating in three tiers with semicircular tables. Examinees were seated in a staggered fashion as much as possible to keep them from looking over one another's shoulder and to ensure a distance of at least five feet between the persons in each row. Another engineering student, Mr. Jeremy Lee, was seated directly in front of Respondent in row five.

4. The FE Examination consists of multiple choice questions given in two four hour sessions - one in the morning and one in the afternoon. Examinees are provided with an examination booklet, a scantron computerized answer sheet and a formula booklet for use during the examination. Examinees are only allowed to bring an approved calculator, admission slip and driver's license with them in to the exam. All calculations are to be made in the answer booklet that comes with the examination no scratch paper is provided and no materials can be taken out of the examination room. The examination in Room 2119 was proctored by three persons, each of whom was required to observe an assigned section of twenty students.

5. On December 7, 2012, Mr. Robert Whorton, P.E., Manager of Compliance and Security for NCEES, sent an email to the Board's Executive Director, Regina Dinger, notifying her that "two pairs of examinees were identified by the copying/collusion program used by NCEES" during the October 2012 exam administration. A link was included in the email for use in downloading NCEES' report regarding the alleged copying/collusion, which revealed statistically significant data suggesting an irregularity involving Mr. Lee and Respondent. In particular, the report advised that "[t]he commonality between the responses of paired examinees, particularly between incorrect responses, signifies strong probability that these individuals exchanged exam

responses" and that they had been seated in close proximity to one another during the examination.

6. On December 11, 2012, the Board's Assistant Executive Director, William R. Huett, notified Respondent that the Board had initiated an investigation relative to the information received from NCEES and requested that he provide the Board with a written account of his activities on October 27, 2012, before December 19, 2012. A similar letter was sent to Mr. Lee. Respondent was also contacted by the Board's Investigator, Robert Herbert, by telephone on December 11, 2012, requesting that he come into the Board office for an interview regarding the matters raised in NCEES' complaint. Respondent was interviewed by Mr. Herbert at the Board's office on January 3, 2013. Mr. Lee was also interviewed by Mr. Herbert, but was cleared of any wrongdoing.

7. By Notice dated February 8, 2013, Respondent was notified via Certified and First Class Mail of the date and time of a public hearing to be held concerning his alleged violations of ALA. CODE § 34-11-15(a) (1975 as amended) - giving false or forged evidence of any kind to the Board in attempting to obtain a certificate of licensure by any person holding himself out as qualified to practice engineering; ALA. CODE § 34-11-16(a)(4) -giving false or forged evidence of any kind to the Board in attempting to obtain a certificate of licensure by any non-licensee; ALA. ADMIN. CODE r. 330-X-14-.06(a)1.- violation of any provision of Alabama law or the Board's rules and regulations; and ALA. ADMIN. CODE r. 330-X-14-.06(a)5. -engaging in any conduct that discredits or tends to discredit the profession of engineering, which were specified in detail in the Board's Charges accompanying the Notice. The Board's Charges were signed by its Executive Director on February 8, 2013, and contained a single charge alleging that Respondent and another identified exam candidate exchanged examination responses during the administration of the FE Examination at USA on October 27, 2012. The Notice and Board's Charges complied in all respects with the requirements of ALA. CODE§ 41-22-12 (1975 as amended) and ALA. ADMIN. Code r. 330-X-16-.03 (2011) and sufficiently apprised Respondent

of the nature of the charges against him and of the date, time and place of the hearing. The Notice and Charges were received by Respondent.

8. The Board solicited testimony from the following individuals at the hearing: Executive Director Regina Dinger; Assistant Executive Director and Chief Investigator William R. Huett; Board Investigator Robert Herbert; USA Associate Professor Thomas G. Thomas, Jr.; Jeremy Lee; and Robert B. Whorton, IV, NCEES' Manager of Compliance and Security.

9. Respondent appeared pro se at the hearing and provided testimony on his own behalf regarding the allegations against him.

10. Ms. Dinger testified regarding Respondent's application for the FE Examination, the nature of the FE Examination, her receipt of the complaint from NCEES, the Board's Charges and the February 8, 2013 Notice to Respondent informing him of the Charges and of the date, time and place for the hearing. In particular, Ms. Dinger testified that NCEES is under contract with the Board to administer the FE Examination in Alabama and that the grading of the exams and establishment of the pass point is done by NCEES.

11. Mr. Huett testified that once a Complaint is opened by the Board's Executive Director, he is responsible to investigate the Complaint and to determine, as a part of the Board's Investigative Committee, whether the evidence established probable cause that a violation of the Board's law or rules occurred. In this case, upon review of the information gleaned from the investigation, the Investigative Committee determined that there was probable cause to proceed with the hearing against Respondent.

12. Mr. Herbert stated that, pursuant to his investigation of this matter, he interviewed Respondent and Mr. Lee regarding the alleged copying/collusion. Respondent stated that he was not aware of who was sitting around him and that he had not been wearing his glasses during the examination, so his vision was blurry. In particular, Mr. Herbert testified, "And he made an exact quote that I asked him if looking at Mr. Lee's answer sheet five feet in front of him what it looked like and he said a little fuzzy. He specifically stated in his short brief sentence the acknowledgment that in reviewing Mr. Lee's information in front of him it was fuzzy

to see. He agreed with that." Respondent also stated that he had used his name plate to calculate some of the answers during the exam and left the testing center with that piece of paper, rather than turning it in to the proctors. Mr. Herbert asked to see that document, but to date, Respondent had not provided it. Respondent informed Mr. Herbert that he never cheated or looked off of anyone else's work, did not know anyone else in his general vicinity in the room and did not discuss the examination with anyone.

13. In his interview, Mr. Lee stated that he did not know anyone in particular in the exam room and was not aware of any impropriety during the exam. Likewise, Professor Thomas told Mr. Herbert that there were no reports from the proctors of any irregularities during the exam. Mr. Herbert testified that Respondent had little response when asked to explain how he had answered 56 of 60 questions identically to those of Mr. Lee, including 41 correct responses and 15 incorrect responses.

14. Professor Thomas testified that the proctors were responsible to ensure the examinees were not marking in anything other than their answer booklets that were distributed with the exams, which must be signed and returned to the proctors at the conclusion of the examination. The booklets and answer sheets are then returned to NCEES. Examinees are precluded from taking any materials out of the exam - to do so constitutes an exam breach. The proctors must retrieve any random sheets, including admission slips, on which examinees may have been performing calculations before they can leave the exam and then file an irregularity report with NCEES concerning the same. Those sheets are also returned to NCEES. Mr. Thomas testified that the USA proctors did not formally examine the admission slips taken out of the exam room and did not identify any irregularities during the administration of the examination on October 27, 2012, or file any irregularity reports with NCEES.

15. Mr. Lee testified that he first became aware of the alleged copying/collusion when he received a call from Mr. Herbert. He stated that he did not have any kind of an agreement with Respondent to exchange answers on the exam and that he moved the answer sheet from side to side in front of him while he was calculating the answers. He could not state definitively

whether he could see the answer sheet of the person in front of him, since he did not try to do so, but opined that he could clearly see the person in front of him, so it was possible that he could have seen the answer sheet, as well.

16. Mr. Whorton testified that he has been NCEES' Compliance and Security Manager for eight years and is also a licensed Professional Engineer. He stated that NCEES provides proctors with a set of instructions for use during the exam administration and provides the chief proctor with guidelines as to how to set up the exam room. If there is sufficient space, NCEES recommends that every other row be skipped for rooms with stadium seating. All examinees receive an NCEES candidate agreement when they register for the exam, which includes all of the rules, guidelines and policies to which examinees must adhere. Examinees agree to comply with these rules again when they sign their answer sheets at the conclusion of the examination. Mr. Whorton confirmed that any examinee who writes out of their examination book can have their exam results invalidated if the outside writings have anything to do with the examination.

17. When analyzing the answer sheets, NCEES first resolves any instances in which the answer sheets were not properly completed and then submits those to its psychometric consultant, Prometric, to identify any questions which require further refinement or for which there is more than one correct answer. After the answer keys are verified, NCEES runs a copy and collusion analysis through Castle Rock Research in Alberta, Canada, Edmonton. Castle Rock Research utilizes five different methods that were developed from the 1970's to the early 1990's to analyze exam results. The morning examinees have their answers compared to everyone else in the country who took that same morning exam, and the same thing holds true for the afternoon session examinees. Mr. Whorton stated that, with regard to this particular exam that was administered at UAB, 18,000 exams were compared for the morning session and 2,400 exams were compared for the afternoon session, which was limited to electrical engineering. The copying and collusion program identifies pairs of examinees that have similar answers -that is, rare or unusual answer strings of responses- by any one of the five methods.

18. Mr. Whorton stated that Respondent and Mr. Lee were flagged by three of the five copying/collusion analysis methods for the afternoon session responses. Once a pair of examinees is flagged, Mr. Whorton looks at the seating chart to determine where the examinees are in proximity to one another. In this case, according to the seating chart provided by the proctors, Respondent was seated directly behind Mr. Lee. He then creates a report including information concerning the number of answers answered correctly and incorrectly by each examinee and notifies the Board of the flagging.

19. The first method by which the pair was flagged is Angoff's (1974) B- Index Method, which "compares the number of identically correct responses for pairs of examinees who fall into similar intervals of exam performance," based on the number of incorrect responses for the pair. Mr. Whorton testified that there were 60 questions on the exam - 56 of those were answered identically by Mr. Lee and Respondent, with 41 correct responses and 15 incorrect responses. "A statistical test is performed to determine whether the observed value of the number of identically incorrect responses for a pair of examinees is significantly different than the mean value of identically incorrect responses for all examinees at that interval. The threshold limit used for this method is 7." Under this method, the probability of the pair having the same identically incorrect responses is 1 in $1.17E + 14.1$ ¹ Of the 2,400 examinees who took the electrical exam that afternoon, Respondent and Mr. Lee were the only pair flagged by that method.

20. The second method flagging Mr. Lee and Respondent is the PAIR1 Method, which "uses two indexes calculated for each pair of examinees, the number of identically incorrect responses to exam questions, and the length of the longest string of identically [sic] responses. The threshold limit used for this method is 400." Mr. Lee and Respondent had a value of 435, which is far to the right of the majority of the determined PAIR1 values.

21. The third method that flagged Mr. Lee's and Respondent's responses was the PAIR2 Method, which "uses two statistics calculated for each pair of examinees. The first statistic is

¹ This number translates into 1 in 1,700,000,000,000,000.

based on the number of incorrect responses in the longest string of identical responses, and the second statistic is based on several different measures such as the number of items on the exam, the number of identical responses, and the number of identically incorrect responses. The threshold limit for this method is 530." Mr. Lee and Respondent had a PAIR2 value of 553, which is again far to the right of the majority of the PAIR2 values determined.

22. Mr. Whorton stated that NCEES also does a second report which includes how the examinees performed on previous attempts and in the morning versus afternoon sessions. This was the first time each examinee had taken the FE Examination. In the morning, Mr. Lee got 67% of the questions correct, Respondent got 44% correct and the copying/collusion analysis pool answered 58.4% of the questions correctly. In the afternoon, Mr. Lee answered 73% correctly, Respondent got 68% correct, and the pool answered 52% correctly.

23. Each person who is flagged for copying/collusion also has their exam books reviewed by NCEES for the amount of work done in their books, as well as an erasure analysis. In the afternoon session, Mr. Lee showed no work for 25 questions, including qualitative type questions. Respondent showed no work on 45 of the 60 questions. Mr. Lee had six erasures where he changed answers- five of those matched Respondent; Respondent had 25 erasures, 23 of which matched Mr. Lee's answers. In addition, the Board's Investigative Committee requested permission to review the exam booklets for both examinees, which were provided by NCEES and then returned pursuant to a non-disclosure agreement.

24. On cross-examination, Mr. Whorton clarified that NCEES has an examination site in Saudi Arabia; however, the FE Examination is not part of Saudi Arabia's licensure process- it participates in the exam to provide an avenue for those persons who may wish to later pursue licensure in another jurisdiction, where the exam is required. He also stated that the FE Examination can be administered in isolation upon a request therefor by a licensing board - NCEES would then supply the exam and the proctor at an additional cost to the licensing board.

25. Respondent testified that he is an international student from Saudi Arabia, in his last semester of electrical engineering at USA. International students are not normally required to

take the FE Examination; however, USA required Respondent to sit for the exam because he had obtained a Social Security Number while working as a server in the dining room at Kansas State University, before transferring to USA. He stated that he understood the exam was not required in Saudi Arabia, but that he studied for the test and wanted to see what he had learned from his classes and to possibly include passing the exam on his resume. Respondent stated that he did not read the examination policies before taking the exam - he simply signed the agreement to abide by them. He stated that he did not wear his glasses during the exam sessions because he only requires them for distance. He finished the first session thirty minutes early and went home to take a nap before returning for the afternoon session. He left the admission slip and calculator at his seat between sessions.

26. Respondent testified that in the afternoon, he did not solve many problems in his exam book - instead, he would solve and then erase some of his calculations in the book and just put the numbers for the formulas on the admission slip. He would plug the numbers into his calculator and "just put the result and add it to the other result." He stated that he could not find that admission slip to provide to Mr. Herbert as proof of his work, as Mr. Herbert requested. Respondent admitted that to work outside of the exam book was a violation of NCEES' policies for the examination and that he was responsible to have read the policies. He stated that he did not copy or cheat from anyone else's paper, he was not able to see anyone else's paper, and he did not have time during the exam to look on anyone else's paper. He felt more comfortable with the subject matter being tested in the afternoon session than that in the morning session, since electrical engineering was his major. He reconfirmed that he did not know Mr. Lee and did not speak to Mr. Lee about the exam. Respondent stated that if he had felt a need to cheat, it would have been in the morning session, which testing was much broader in scope and not in his field. He is ready to graduate and go home to Saudi Arabia.

CONCLUSIONS OF LAW

1. The Alabama Legislature has created the Alabama Board of Licensure for Professional Engineers and Land Surveyors for the purpose of safeguarding life, health and property and

promoting the public welfare with regard to the practice of engineering and land surveying within the state. ALA. CODE §§ 34-11-2(b) and (c) (1975 as amended). In order to satisfy the minimum requirements for licensure as a Professional Engineer in Alabama, graduates of an approved engineering school must successfully pass the Fundamentals of Engineering Examination, serve a four-year engineering internship and then pass an examination on the principles and practice of engineering. ALA. CODE § 34-11-4(1)a (1975 as amended).

2. The Board is empowered to reprimand, censure, fine or place on probation any person for violation of any provision of ALA. CODE §§ 34-11-11, -15 or -16 (1975 as amended). ALA. ADMIN. CODE r. 330-X-14-.06(a)1. (2011). This includes engineering students who apply to the Board to sit for the FE Examination. By signing the application form, the applicant "subscribe[s] to and agree[s] to conform with the Rules of Professional Conduct set forth in the Administrative Code, Rule 330-X-14" and acknowledges that the Board has authority pursuant to ALA. CODE § 34-11-11 to take disciplinary action against any engineering intern for the practice of fraud or deceit in obtaining a certificate.

3. The evidence supporting a conclusion that Respondent is guilty of copying Mr. Lee's answers during the electrical engineering portion of the FE Examination is abundant and persuasive in this case. Respondent and Mr. Lee identically answered 56 of 60 questions on the afternoon portion of the exam. The probability of Respondent and Mr. Lee having the same incorrect responses during the afternoon session was determined statistically by an established academic researcher under contract to NCEES to be 1 in 1,170,000,000,000,000 under the Angoff's (1974) B-Index Method. Further, two additional analytical methods utilized to evaluate response strings and the number of identically incorrect and correct responses between Respondent and Mr. Lee, the PAIR1 and PAIR2 Methods, identified these examinees as having response patterns that were very unusual and thus, very rare.

4. Beyond these statistical analyses, NCEES determined that Mr. Lee answered 73.3% of the electrical engineering questions correctly, as compared with Respondent's 68.3% and

52.4% for the copying/collusion analysis pool. Mr. Lee showed no work for 25 of 60 questions, while Respondent showed no work on 45 of the 60 questions. Mr. Lee had six erasures where he changed answers- five of those matched Respondent; Respondent had 25 erasures, 23 of which matched Mr. Lee's answers.

5. In both his previous statements to the Board and his sworn testimony at hearing, Respondent claimed that he did not cheat. Respondent stated on both occasions that he did not wear his glasses during the exam, which are required for distance. With regard to Respondent's statements to the Board's Investigator that Mr. Lee's paper looked "a little fuzzy" to him, based on his stated confusion over this statement at hearing, the undersigned finds that Respondent may well not have understood the full implications of the question he was being asked. Respondent's command of the English language, while commendable, still leaves something to be desired, as the record evidences. The undersigned does not, therefore, find this statement to be persuasive; however, she notes that Respondent was not fully invested in taking the examination and had nothing to lose by failing, since his plans to practice engineering in Saudi Arabia do not require that he take and/or pass the FE Examination.

6. Respondent does admit that he failed to read NCEES' policies and procedures governing the taking of the FE Examination and therefore violated those procedures by calculating answers on his admission slip - writing outside of his exam booklet - and then taking this slip with him from the exam room. Such conduct constitutes a clear breach of NCEES' requirements, for which Respondent's test results may be invalidated, particularly since he has been unable to produce that slip for review by NCEES or the Board, as required. While Professor Thomas testified credibly that the proctors did not report any irregularities during the examination, bolstering Respondent's claims that he did not copy off of Mr. Lee's answer sheet, the undersigned is troubled that the proctors also did not observe Respondent writing outside of the exam booklet during these four hours of the exam, as he admitted.

7. Respondent's breach of the security guidelines governing the administration of the FE Examination at the University of South Alabama on October 27, 2012, thus constitutes fraud

and deceit in attempting to obtain a certificate of licensure under ALA. CODE § 34-11-15(a) and -16(a)(4) and conduct that discredits or tends to discredit the profession of engineering, pursuant to ALA. ADMIN. CODE r. 330-X-14-.06(a)5 of the Board's Rules of Professional Conduct.

CONCLUSION AND RECOMMENDATION

1. It is incumbent upon an examinee to be familiar with the testing requirements under the guidelines, policies and procedures disclosed by NCEES governing the administration of the FE Examination, which is required under Alabama law and the Board's rules and regulations for licensure as a Professional Engineer. ALA. CODE § 34-11-1, et seq. (1975 as amended); ALA. ADMIN. CODE r. 330-X-1-.01, et seq. (2011).
2. Respondent admits that he committed a breach of the guidelines governing the administration of the FE Examination by calculating his answers outside of the exam booklet and removing the admission slip on which he recorded his work from the exam room, for which his results are due to be invalidated.
3. For this reason, and as shown above, on the basis of the evidence of record and the testimony presented, it is hereby concluded that Respondent's conduct constitutes violations of ALA. CODE §§ 34-11-15(a), -16(a)(4) (1975 as amended) and ALA. ADMIN. CODE r. 330-X-14-.06(a)1 and -.06(a)5. (2011).
4. Accordingly, it is hereby recommended that the results of Respondent's October 27, 2012 FE Examination be invalidated in accordance with the provisions of ALA. CODE § 34-11-11 (1975 as amended) and ALA. ADMIN. CODE r. 330-X-16-.06(a)1 (2011), and that he be assessed a penalty in the amount of Four Hundred Dollars (\$400.00) for these violations, as partial payment of the cost of these proceedings, in accordance with ALA. CODE § 34-11-16(g) (1975 as amended) and ALA. ADMIN. CODE r.330-X-16-.06(1) (2011), within thirty (30) days of the date of a Final Order issued by the Board.

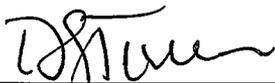
It is further recommended that any future administration of the FE Examination to Respondent be provided in isolation, with any additional cost therefor assessed to Respondent.

ORDER

THE BOARD, after deliberation and review, agrees with and adopts as final the Findings of Facts, Conclusions of Law and Conclusions proposed by Administrative Law Judge, Dana H. Billingsley but respectfully modifies the Recommendations to include complete payment of the cost of the hearing. The Board hereby finds Respondent **GUILTY** of the allegations made against him and hereby **ORDERS** as follows:

1. Respondent's October 27, 2012 Fundamentals of Engineering examination results shall be invalidated.
2. Respondent shall pay to the Board \$2,030.00 (two thousand thirty dollars) for cost of hearing within thirty (30) days of date of Final Order.

Done this the 17th day of April, 2013.



Daniel S. Turner



Earl R. Foust

DID NOT ATTEND

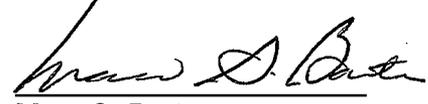
Charles P. Willis



C. Michael Arnold

RECUSED

Phillip E. Santora



Marc S. Barter



W. Gerald Wilbanks