NEVADA STATE BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS

Board Meeting
May 9, 2024
Las Vegas, NV

1. Meeting Call to Order

2.Pledge of Allegiance

3. Public Comment

4. Introductions

5. NRS 625 Waiver Requests

WAIVER REQUESTS
Thursday, May 9, 2024

APPLICANTS REQUESTING WAIVER OF NRS 625.183(1)(A)			
NAME	**DISCIPLINE**	**TO:**	**GRANT?**
1. Kunal Raithatha	CSE	Karen Purcell, PE	
NRS 625.183, item 1, part a, "Waiver of FE with 15 or more years of experience."			

6. Non-Appearance Applications for Initial Licensure

NEVADA STATE BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS
EDUCATION CREDIT GUIDELINES

DEGREE	YEARS CREDIT (MAX)	YEARS ACCEPTABLE EXPERIENCE REQUIRED
Undergraduate (BS): ABET/EAC accredited	4	4
Undergraduate (BS): ABET/ETAC accredited	4	4
Undergraduate (BS Engineering): Washington Accord	4	4
Undergraduate (BS Engineering): Non-ABET/non-Washington Accord (must meet NCEES education standard, any deficiencies to be considered by board)	4	4
Undergraduate (BS Construction Management): ABET accredited	4	4
Undergraduate (BS Construction Management): Not ABET accredited but institution has ABET accredited engineering programs	4	4
Engineering Masters: US Masters with non-US BS and/or non-Washington Accord in Engineering	6	2
Engineering Doctorate: US Doctorate with non-ABET/non-Washington Accord/foreign BS+MS in Engineering	6	2

Civil

COLBY BENCH (20-110-87)

All work experience reviewed by two licensed professionals

DISCIPLINE: CIVIL

GENERAL

Applying To
Nevada

Application Type
Initial - PE

Application Date
04/17/2024

Citizenship
United States

SUMMARY

Engineering Experience after EAC degree
4 years

Total Engineering Experience
4 years

Experience under licensed engineer
4 years

Disciplinary Action
None reported

ABET EAC

FE EXAM

PE EXAM

EDUCATION

Bachelors in Civil Engineering (EAC)
Utah State University
August 2008–April 2020

EXAMS

Fundamentals of Engineering (FE)
Utah
August 2019

Principles and Practice of Engineering (PE)
Civil
Nevada
May 2023

LICENSES

Additional Licenses
None

COLBY BENCH (20-110-87)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Horrocks
Nevada (United States)
Civil Streets Engineer-in-training
May 2020—April 2024

Verified by
Ben Sprague
ben.sprague@horrocks.com

Experience Summary
Full-Time
Engineering: 4 years
Post EAC degree: 4 years
Experience under licensed engineer: 4 years

TASKS

I work for Horrocks in the transportation division as a roadway engineer, focusing on non-highway projects such as county or city roads and streets. I gather preliminary design data for projects such as taking site photos, researching existing right of way, obtaining and organizing as-built plans, and taking inventory of ADA compliance and utilities. I create utility conflict spreadsheets and address utility company comments related to the project.
Using CAD I create roll plots, exhibits of design alternatives and early design concepts for our clients. I assist the project engineer with design elements as well as with plan organization and production. I draw and annotate the detailed drawings within the plans. Using Civil3D, I have created models of new corridors, storm drain and sewer pipe systems, as well as detailed grading of sidewalk ramps. I calculate quantities and help prepare cost estimates and special provisions.
I attend meetings with the client to answer questions and address their comments regarding the plans. With my supervisor and team, I attend internal progress meetings as well as participate in the quality control and revision process, checking the work of others as well as my own. I help to deliver quality plans efficiently and on time.
I also have worked with the construction management team in the field in an inspector. I verify construction work performed is per plan and the project specs. Work I have inspected include pre-cast and cast-in-place storm drain, MSE walls, and dry utility installation. I am responsible for calculating and verifying quantities of work performed for pay items.

REPRESENTATIVE PROJECTS

Equestrian Dr / Magic Way (Oct. 2020 - Aug 2023)
This project is in Henderson, Nevada and includes pavement rehab, roadway widening, roadway extension, and pedestrian facility upgrades on two local roads. I conducted a site inventory of the reflectivity and overall condition of all the street signs within the project limits and incorporating that information into the final signing and striping plans. I designed the horizontal alignment and vertical profile of a new 2,000 foot section of roadway and three half-street improvements. I created a corridor and surface of the new roadway and graded three drainage crossings. I designed and graded sidewalk ramps to meet ADA requirements. I produced the plans and calculated the cost estimate.

Frank Sinatra Drive (Apr. 2020 – Apr. 2021)
This project includes pavement rehab, ADA improvements, adding median islands, and signal upgrades along three miles of Frank Sinatra Drive. This section of roadway is used as service access for Las Vegas strip resorts. I evaluated and redesigned sidewalk ramps for ADA compliance as well as designed alternative barrier protections for roadside hazards. I calculated and compiled the cost estimate for the project as well as produced the plans. I attended meetings with the client throughout the project design.

SR 147- Lake Mead Blvd (March. 2022 – Sept. 2023)
This project includes pavement rehab, ADA improvements, adding pedestrian crossings, and signal upgrades along five miles of Lake Mead Blvd in west Las Vegas. I took pictures and field measurements for a site preliminary design field study. I reprofiled the top back of curb and over 100 driveways and 150 sidewalk ramps to be ADA compliant. I prepared the NDOT roadway structures list sheets and calculated roadway quantities according to NDOT design standards.

Jones Boulevard-Blue Diamond to Windmill (Dec. 2023 – April. 2024)
This project includes construction of a bridge over existing railroad, MSE walls, storm drain channel, waterline relocation, roadway and signal improvements. This project is located in the southwest area of Clark County. I verified that concrete is poured according to project specifications and that it is within the approved mix design. I visually inspected the installation of 18’x6’ reinforced concrete box storm drain as well as a cast in place storm drain channel and verified that they were constructed as shown on the plans and according to the standard specifications. I tracked work performed with daily work reports and quantified bid items completed for payment. I attended preconstruction and progress meeting with the client as well as the contractor. I coordinated

with the contractor as well as quality control personnel to ensure the project was constructed according to plan, specifications, as well as on schedule and within the cost estimate.

ADDITIONAL INFORMATION

TIME GAPS

Start Date	End Date	Explanation
May 2005	July 2008	During this period after high school I was a service volunteer for my church

SPENSER BUCHHOLZ (18-959-25)

All work experience reviewed by two licensed professionals

DISCIPLINE: CIVIL

GENERAL

Applying To
Nevada

Application Type
Initial - PE

Application Date
04/19/2024

Citizenship
United States

SUMMARY

Engineering Experience after EAC degree
4 years, 2 months

Total Engineering Experience
4 years, 2 months

Experience under licensed engineer
4 years, 2 months

Other Experience
4 months

Disciplinary Action
None reported

ABET EAC

FE EXAM

PE EXAM

4+

EDUCATION

Bachelors in Mechanical Engineering (EAC)
University of Nevada, Reno
August 2014–May 2018

EXAMS

Fundamentals of Engineering (FE)
Nevada
April 2018

Principles and Practice of Engineering (PE)
Civil
Nevada
March 2024

LICENSES

Additional Licenses
None

WORK EXPERIENCE

University of Nevada, Reno
Nevada (United States)
Manufacturing Lab Supervisor and Technician
May 2017—August 2018

Verified by

Experience Summary
Part-Time
Other: 4 months (25%)
Experience under licensed surveyor: None

DESCRIPTION

SPENSER BUCHHOLZ (18-959-25)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Nevada Department of Transportation
Nevada (United States)
Associate Engineer
February 2020—May 2022

Verified by
Wesley Stewart Osmer
wosmer@dot.nv.gov

Experience Summary
Full-Time
Engineering: 2 years, 3 months
Post EAC degree: 2 years, 3 months
Experience under licensed engineer: 2 years, 3 months

TASKS

I was an Associate Engineer - Rotational Engineer for NDOT where I worked in and learned from a majority of the Engineering Related Divisions within NDOT. These Engineering Divisions included Roadway Design, Field Construction Crew 907, Structures/Bridge, Hydraulics/Stormwater, Traffic Operations, Right of Way, Materials, and Headquarters Construction.

Throughout these Divisions, I utilized the NDOT, AASHTO, and FHWA guidelines and manuals dictating transportation projects in the design, review, and construction of these projects. The applicable manuals include NDOT's Road Design Guide, NDOT's Drainage Manual, NDOT's Construction Manual, AASHTO's A Policy on Geometric Design of Highways and Streets, AASHTO's Roadside Design Guide, AASHTO's Guide for the Design of Pavement Structures, and FHWA's Manual on Uniform Traffic Control Devices

I applied engineering principles to design roadway plan sheets and geometrics, develop roadbed structural sections, determine hydraulic feature locations and sizes, inspect construction activities, survey construction stakeout, and inspect existing bridge structures.

Specific examples of engineering tasks are as follows: I calculated roadway mill and paving quantities and developed the appropriate plan sheets showing this information. I designed and creating striping plan sheets. I calculated water runoff from existing topography and developed the appropriate hydraulic feature to handle the design flow.

I utilized engineering software in the application of the appropriate engineering principles. These applications include Microstation with InRoads, ArcGIS Pro, HEC-HMS, HY-8, and Hydraulic Toolbox.

REPRESENTATIVE PROJECTS

Contract 3745 ($49,000,000) US 50 Widening: I performed construction survey stakeout for cattle guards, median island paving, striping, signs, and curb and gutter. I coordinated with the Construction Crew and other NDOT divisions to adjust an exit lane turn radius to was conflicting with a new cattle guard for large vehicles.

Contract 3829 ($4,600,000) US 50A Fernley: I was the lead cold mill inspector for the pavement rehabilitation of the project. I verified the quantity and location of the mill. I observed the condition of the pavement and recommended to the project engineer any additional mill depth or width to resolve unexpected pavement layer delamination or thin pavement depths. I performed slope stake survey for the earthwork required to construct a new off-highway multi use path.

Contract 3863 ($1,850,000) US 50A Fernley Signal: During the preconstruction phase, I independently revied the contract plans and specifications to determine accuracy and constructability. I performed preliminary survey to stake out new signal equipment and poles to be performed. I verified existing topography and determined where new equipment locations needed to be adjusted to meet NDOT and FHWA design guidelines.

Preliminary Design 74249 (EST. $32,500,000) US 50 Spooner Summit to Stateline: While the project was still in the preliminary design phase, I performed a technical review on the existing plan sheets and project scope. Using Microstation with InRoads, I calculated the required cold mill, asphalt hot mix, and aggregate base quantities needed for the scoped pavement rehabilitation strategy. I developed and created the striping plan for the corridor and suggested modifications to the existing design to enhance visibility and safety.

SPENSER BUCHHOLZ (18-959-25)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Nevada Department of Transportation
Nevada (United States)
Staff II, Associate Engineer
May 2022—February 2023

Verified by
Peter Nils Schmalzer
pschmalzer@dot.nv.gov

Experience Summary
Full-Time
Engineering: 9 months
Post EAC degree: 9 months
Experience under licensed engineer: 9 months

TASKS

During my time as a Staff II, Associate Engineer in the Materials Division of NDOT, I was in the role of a Roadbed Designer.

My tasks of a roadbed designer mostly revolved around the development of roadbed needs and strategies to be implemented in future NDOT Roadway Rehabilitation projects.

When a project was determined to be moving forward, I began researching the section of roadway that will be included in the project. I created a roadbed history for the section of roadway that detailed all previously recorded pavement strategies that had been performed. This history was then used to determine the likely existing roadbed structural section. I would then develop a pavement coring schedule to obtain cores of the existing pavement.

Once the existing roadbed structural section was determined, I used AASHTO's Guide for the Design of Pavement Structures to determine an appropriate pavement strategy. Using traffic loading data of the roadway corridor, I would verify that the new roadbed structural section, and the corresponding Structural Number, could withstand the traffic loading for the design period of the roadway. I would also develop the theoretical asphalt pavement mix design that was appropriate for the project's region. My roadbed strategies and designs were relayed to the design divisions through official memorandums.

I would perform plan reviews throughout the contract pre-construction design phase during the 30%, 60%, and 90% design meetings. During the reviews, I focused on Materials and pavement related design plan sheets and specifications. I coordinated with other divisions such as Project Management, Roadway Design, and Specifications to develop successful contract documents.

REPRESENTATIVE PROJECTS

Pre-construction Design No. 74358 SR 766 New Mont Rd. Carlin: I traveled to the project location to research a unique block and transverse crack pattern that was seen in the region. I coordinated with other Materials Engineers to determine if a level asphalt course could be utilized to reduce future reflection cracking. I develop the Pavement Design Strategy and Theoretical Materials to be implemented in the contract plans and coordinated with the appropriate Design Divisions to develop the plan set.

Pre-construction Design No. 74375 US 395 Douglas County: I performed a roadbed history report and researched the current condition. A section of the roadway displayed much greater fatigue cracking than theoretically should be occurring. It was determined that the roadway's elevation was a factor in subgrade degradation due to a high water table. I created and issued the Pavement Strategy to perform a roadbed modification (i.e. cement treated base) and raise the roadway to prevent damage in the future.

Pre-construction Design No. 74354 Pyramid Way: I attended a Pre-design field meeting with other divisions and consultant design staff to determine the current field conditions. I determined areas that were seeing accelerated fatigue failure. I then developed the Pavement Strategy to utilized multiple different pavement strategies to address areas of concern while utilizing available funds in the most cost effective way.

SPENSER BUCHHOLZ (18-959-25)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Nevada Department of Transportation
Nevada (United States)
Staff II, Associate Engineer
February 2023—April 2024

Verified by
Bhupinder Singh Sandhu
bsandhu@dot.nv.gov

Experience Summary
Full-Time
Engineering: 1 year, 2 months
Post EAC degree: 1 year, 2 months
Experience under licensed engineer: 1 year, 2 months

TASKS

Crew 911 Staff II, Associate Engineer

In my current role on an NDOT Construction crew, I act as the crew's staff and project engineer. I support the crew and the crew's Resident Engineer in the successful administration of NDOT Transportation contracts. My tasks and duties vary on the different phases each contract follows from pre-construction, active construction, and post-construction/contract closeout.

During the pre-construction and design phase, I provide technical review comments on plan sheets, specifications, and preliminary estimates. I coordinate with other NDOT divisions to improve constructability of the project and identify risks that may occur during construction.

During active construction contracts, I assist the crew in the successful administration of the contract following NDOT and FHWA guidelines. I review contractor submittals, such as material/product submittals, certifications, and schedules, and determine that all submittals follow NDOT requirements.

I help identify field changes from the proposed plan and develop a solution that benefits the contractor, NDOT, and the public. I create contract Change Orders and coordinate with NDOT's Design and Headquarters Construction Divisions to efficiently incorporate Change Orders into the contract documents.

I review and approve Contractor Pay Estimates to ensure that contractors' are paid quickly and accurately.. This includes reviewing all pay item postings from our crew for completeness and accuracy.

During the project closeout process, I assist the Resident Engineer in the completion of the Closeout Change Order, verify the completeness of the Sampling and Testing Status Report, and complete the Final Pay Estimate to the contractor.

REPRESENTATIVE PROJECTS

Contract 3911 ($) US 50/Warrior Way Signal (Active): Prior to construction, I coordinated will stakeholders, including the US Forest Service, the local fire department, TRPA, etc., to determine the need and impact to the public. During construction I performed field inspection on different signal and draining components to ensure NDOT standards were followed. I created multiple Change Orders addressing field changes to improve the final design of the project.

Contract 3858 ($) SR 431/SR 28 (Active): Upon being hired with the crew, this contract had already been in active construction for multiple seasons. I inspected cold mill operations on SR 431 and was the hot plant inspector to verify that the final paving surface met NDOT's expectations and standards. I helped develop and execute Contract Change Orders that provide improvements to the contract such as a new intersection striping design, unique barrier rail delineators to assist snow plows, and adjusting contract bid item quantities to match what is occurring in the field. As we are beginning the contract closeout phase, I am coordinating with the contractor to develop a final schedule and verify that all items of work are complete and paid for.

Contract 3945 ($) Adaptive Lighting Project I-580 (Active): Prior to advertisement, I attended and participated in contract review meetings. I assisted the Design and Specifications Division in the final development of all contract documents. I inspected and coordinated the placement of a unique pullbox cover that attempts to reduce electrical wire theft. I am developing a Change Order compensates the contractor for the replacement of stolen wire and for the reactivation of existing lights on the I-580 freeway in South Reno. I review and approve Contract Pay Estimates for compensation of contract work items that have been completed.

ADDITIONAL INFORMATION

TIME GAPS

Start Date	End Date	Explanation
September 2018	January 2020	Unsure of what Engineering field I would pursue, I moved to Washington to be closer to more manufacturing jobs. After not having success in finding the role I wanted, I applied for the NDOT role. I returned to Nevada and began my career in Civil Eng.

HYO CHO (22-947-22)

All work experience reviewed by two licensed professionals

DISCIPLINE: CIVIL

GENERAL

Applying To
Nevada

Application Type
Initial - PE

Application Date
04/04/2024

Citizenship
South Korea

SUMMARY

Engineering Experience after EAC degree
8 years, 3 months

Total Engineering Experience
8 years, 9 months

Experience under licensed engineer
4 years, 2 months

Other Experience
12 years, 10 months

Disciplinary Action
None reported

ABET EAC

FE EXAM

PE EXAM

4+

EDUCATION

Bachelors in Civil Engineering (EAC)
University of Southern California
August 1999–December 2002

EXAMS

Fundamentals of Engineering (FE)
California
October 2001

Principles and Practice of Engineering (PE)
Civil
Nevada
March 2024

LICENSES

Additional Licenses
None

WORK EXPERIENCE

C.W. Driver
California (United States)
Project Engineer
June 2002—September 2003

Verified by
Jennifer Pearson
jennifer.pearson@huckabee-inc.com

Experience Summary
Full-Time
Engineering: 1 year, 3 months
Post EAC degree: 9 months
Experience under licensed engineer: None

TASKS

- I reviewed project schedules and 3-week forecast schedules.
- I conducted the weekly Owner's Meetings on all of my assigned projects.
- I reviewed and analyzed Requests For Information.
- I reviewed and analyzed change order requests to determine merit with respect to the contract documents.
- I reviewed and analyzed submittals and shop drawings.
- I analyzed scaffolding safety requirements and provided direction to work crews.

REPRESENTATIVE PROJECTS

I was the Project Engineer for CW Driver Contractors on several school modernization projects for the Glendale Unified School District. As the Project Engineer I served as the liaison between the Architects, Inspectors, Contractors, Suppliers, and Owner's Representatives. I was tasked with all project document control responsibilities including, but not limited to: Requests For Information (RFIs), Change Order Requests, Submittals and Shop Drawings reviews. I was responsible for coordinating work and scheduling work with general contractors as well as subcontractors. I reviewed project schedules and 3-week forecast schedules. I conducted the weekly Owner's Meetings on all of my assigned projects, and was responsible for delegating action items and preparing the meeting minutes on a weekly basis. I reviewed all RFIs for the projects I was assigned and researched the contract documents for merit, and on several occasions answered RFIs with information I obtained from the plans and specifications. I was tasked with reviewing and negotiating change order requests through research of the contract documents and analyzing contracted scopes of work with respect to merit and provide recommendations to the client. I reviewed submittals and shop drawings for conformance with the plans and specifications. Shop drawings comprising HVAC, plumbing, electrical, concrete reinforcing, concrete formwork, casework, toilet compartments, and structural items. I reviewed and analyzed scaffolding safety requirements with respect to OSHA guidelines. I intermittently conducted morning toolbox safety meetings in conjunction with the Superintendent.

HYO CHO (22-947-22)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

AEI Consultants
California (United States)
Project Engineer / Project Manager
October 2003—December 2007

Verified by
Joseph Patrick Derhake
jderhake@partneresi.com

Experience Summary
Full-Time
Engineering: 4 years, 2 months
Post EAC degree: 4 years, 2 months
Experience under licensed engineer: 4 years, 2 months

TASKS

• I analyzed lab test data, soils reports, and environmental contamination reports to provide recommendations for clients.
• I performed constructability reviews of civil plans to provide recommendations of any changes to achieve favorable constructability.
• I conducted plan reviews and analyzed as-built drawings to provide design recommendations of remediation and civil plans.
• I calculated construction cost estimates of crews, efficiency rates of equipment, materials, and delivery logistics for each project.
• I performed calculations to evaluate and design shoring requirements.
• I performed cut and fill calculations as necessary to maximize project efficiency.
• I reviewed and implemented OSHA safety guidelines for trenching, excavation, fall protection, and confined spaces for work crews.
• I developed a company wide safety procedures document incorporating OSHA safety guidelines.
• I conducted safety meetings for team members, with an emphasis on OSHA guidelines.
• I reviewed crane lift plans and checked calculations for capacity for removal of tanks.
• I analyzed truck load capacities and calculated cycle times for removal of soil spoils to optimize efficiency.
• I performed surveying of grades to ensure conformance with plans.
• I reviewed and analyzed slope and capacity calculations to verify utility replacements.
• I taught and trained junior engineers on the principles of surveying, plan reading, environmental design, civil design, CPM scheduling, and project management.

REPRESENTATIVE PROJECTS

Various Engineering Reports With Recommendations For Clients and Various Environmental Remediation and Civil Projects throughout Southern California.

October 2003-December2007

I served as the Project Engineer/Project Manager for AEI Consultants, Inc. on various environmental remediation projects encompassing several civil disciplines including, but not limited to contamination remediation, demolition, re-grading, and utilities replacements. My portfolio of projects was comprised of fifteen (15) or more small to medium scale projects throughout my tenure with the company. My role progressed from project engineer to project manager and I was eventually promoted to a department manager position. AEI is an engineering consulting firm providing engineering reports as well as environmental remediation and civil services. I collected and analyzed data and prepared engineering reports providing recommendations for clients. AEI would also perform environmental remediation and civil services resulting from the recommendations of the reports. I analyzed lab test data, soils reports, and environmental contamination reports to provide recommendations for clients with respect to remediation procedures. I performed constructability reviews of civil plans and analyzed the remediation plans prior to executing the scopes of work, providing recommendations to achieve favorable constructability. I conducted plan reviews and analyzed as-built drawings to develop and implement the remediation plans accordingly. I calculated construction cost estimates of crews, efficiency rates of equipment, materials costs, and delivery logistics for each project. I developed site layout plans, logistics plans, and schedules for each project. I performed calculations to evaluate and design shoring requirements for projects requiring excavation, removal, and backfill, while performing cut and fill calculations as necessary to maximize project efficiency. I reviewed and implemented OSHA safety guidelines for trenching, excavation, fall protection, lock-out/tag-out, and confined spaces for work crews. I developed a company wide safety procedures document and continually conducted safety meetings for all team members. I reviewed crane lift plans and checked calculations for capacity for removal of tanks and analyzed truck load capacities and calculated cycle times for removal of soil spoils to optimize efficiency. I performed surveying of grades to ensure conformance with plans. I reviewed and analyzed slope and capacity calculations to verify utility replacements that required changes when encountering unforeseen conditions. I also taught and trained junior engineers on the principles of surveying, plan reading, environmental design, civil design, CPM scheduling, and project management.

HYO CHO (22-947-22)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

American Constructors of California, Inc.
California (United States)
Project Engineer
January 2007—April 2009

Verified by
Thomas Chan
goldenmtns@yahoo.com

Experience Summary
Full-Time
Engineering: 2 years, 3 months
Post EAC degree: 2 years, 3 months
Experience under licensed engineer: None

TASKS

• I reviewed project schedules and generated 3-week forecast schedules on a weekly basis.
• I reviewed all RFIs for the projects I was assigned against the contract documents and on several occasions answered RFIs with information I obtained from the plans and specifications.
• I prepared change order work scope packages for various scopes of work for the different trades.
• I reviewed and analyzed change order requests and engaged in negotiations of change order amounts with the subcontractors as well as provide recommendations to the client regarding merit of requests.
• I reviewed submittals and shop drawings for conformance with the plans and specifications.
• I calculated construction loads for scaffolding and reviewed and analyzed OSHA safety guidelines for implementation into our project.

REPRESENTATIVE PROJECTS

Three (3) Apartment Complexes in Anaheim, CA for client, CIM Group.

January 2007-April 2009

I was the Project Engineer for American Constructors of California, Inc. (now known as American Multifamily, Inc.) on 3 large apartment complex projects for the CIM Group. These projects were three adjacent projects that were constructed simultaneously. These projects were complex in nature, containing underground parking garages as well as roof top pools. Adding to the complexity was each project was designed by different Architects and Design Teams. As the Project Engineer I served as the liaison between the Architects, Inspectors, Contractors, Suppliers, and Owner’s Representatives. I was tasked with all project document control responsibilities including, but not limited to: Requests For Information (RFIs), Change Order Requests, Submittals and Shop Drawings reviews. I coordinated subcontractors and suppliers for the various scopes of work. I reviewed project schedules and generated 3-week forecast schedules on a weekly basis. I intermittently conducted the weekly Owner’s Meetings and was responsible for preparing the meeting minutes on a weekly basis. I reviewed all RFIs by researching the contract documents and on several occasions answered RFIs with information I obtained from the plans and specifications. I prepared change order work scope packages for various scopes of work for the different trades. I reviewed and analyzed change order requests and engaged in negotiations of change order amounts with the subcontractors as well as provide recommendations to the client regarding merit of requests. I reviewed submittals and shop drawings for conformance with the plans and specifications. Shop drawings comprising HVAC, plumbing, electrical, concrete reinforcing, concrete formwork, casework, toilet compartments, and structural items. I calculated construction loads for scaffolding and reviewed and analyzed OSHA safety guidelines for implementation into our project.

WORK EXPERIENCE

Tudor Malls, Inc.
Alaska (United States)
Project Manager / Property Manager
May 2009—March 2022

Verified by

Experience Summary
Full-Time
Other: 12 years, 10 months
Experience under licensed surveyor: None

DESCRIPTION

HYO CHO (22-947-22)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Central Environmental, Inc.
Nevada (United States)
Project Engineer
April 2022—November 2023

Verified by
Luis Oreste Vespa
luisv@cei-alaska.com

Experience Summary
Full-Time
Engineering: 1 year, 7 months
Post EAC degree: 1 year, 7 months
Experience under licensed engineer: None

TASKS

• I obtained certifications in OSHA 30, Confined Spaces, Excavation and Trenching Safety, and Certified Erosion and Sediment Control Lead (CESCL), which I was able to utilize in the project and provide recommendations regarding safety, confined space procedures, trenching safety, and BMPs.
• I designed a confined space plan and procedures for entry and work in the water reservoir tanks.
• I performed surveying of grades with Trimble GPS surveying equipment and analyzed data for conformance with civil plans.
• I inspected construction for quality and conformance to plans and specifications.
• I calculated construction cost estimates of crews, efficiency rates of equipment, materials costs, and delivery logistics.
• I reviewed and analyzed the crane lift plan for the placement of the check structure steel walkways.
• I performed cut and fill calculations to determine quantities for progress payments.
• I analyzed materials test reports and lab data reports for recommendations and submissions to the client.
• I reviewed and analyzed site conditions with respect to OSHA safety guidelines for trenching, excavation, and fall protection and recommended and implemented safety measures.
• I conducted a constructability review of the plans and generated RFIs during the pre-construction phase.
• I calculated construction loads for scaffolding.
• I wrote the project Safety Plan.
• I designed site layout plans, haul routes, and logistics plans.
• I created the Truckee Canal project's Baseline Schedule.
• I analyzed as-built drawings to assess existing conditions of canal crossings to provide recommendations on the best means and methods.
• I reviewed submittals and shop drawings for conformance with the plans and specifications.
• I analyzed site drainage and sedimentation flow to provide recommendations for BMPs into our Storm Water Pollution Prevention Plan.

REPRESENTATIVE PROJECTS

Water Reservoirs Overflow Piping Replacement Projects for Alaska Water & Wastewater Utility in Anchorage, AK.

April 2022-September 2022

I hired on with Central Environmental, Inc. as a Project Engineer. I had missed the industry and am excited to be back, which is why I decided to pursue the PE license. This project was comprised of 10 small projects combined. It was very complex in nature as 6 out of 10 tanks spread throughout the city needed to be emptied for interior overflow piping replacements. Adding to the complexity was that only 1 tank at a time could be emptied in order to maintain city water capacity needs. I was tasked with managing each project and work crew to meet schedule and budget. The company enrolled me in several safety and training certification courses: OSHA 30, Confined Spaces, Excavation and Trenching Safety, and Certified Erosion and Sediment Control Lead (CESCL), which I was able to utilize in the project and provide recommendations regarding safety, confined space procedures, trenching safety, and determining and implementing BMP measures for sediment control. I developed site layout plans, logistics plans, and sub-schedules for each project. I designed a confined space plan and procedure for entry and work in the water reservoir tanks.

Truckee Canal Project in Fernley, NV for the Bureau of Reclamation

October 2022-November 2023

My next project for Central Environmental, Inc. was the opportunity to move to Fernley, NV to work as the Project Engineer on the Truckee Canal Project for the Bureau of Reclamation. This project was comprised of 3.5 miles of concrete lining of the earthen canal with demolition and replacement of an existing check structure with replacement of new radial gates. As the Project Engineer my field duties were comprised of several civil disciplines. I performed surveying of grades with Trimble GPS surveying equipment and analyzed data for conformance with civil plans. I inspected construction for quality and conformance to plans and specifications. I calculated construction cost estimates of crews, efficiency rates of equipment, materials costs, and delivery logistics for each project. I reviewed and analyzed the crane lift plan for the placement of the check structure steel walkways, checking crane capacity and radius for the weight of pick loads. I performed cut and fill calculations to determine quantities for progress payments. I managed the Materials Testing agency in the testing of concrete and soils and analyzed test reports and lab data reports for recommendations and submissions to the client. I reviewed and analyzed site conditions with respect to OSHA safety guidelines for trenching, excavation, and fall protection and implemented safety measures. I calculated construction loads for scaffolding to review against capacities in the scaffolding submittal and reviewing and ensuring OSHA scaffolding parameters are met in the field.
My office duties included scheduling, RFIs, Submittals, Shop Drawings, conducting safety orientations, SWPPP reports and Change Order Requests. I conducted a constructability review of the plans and generated RFIs during the pre-construction phase. I wrote the project Safety Plan, encompassing all aspects of safety with respect to OSHA guidelines, as required and approved via submittal. I designed site layout plans, haul routes, logistics plans, and engaged in permitting and the acquisition of temporary utilities from the local agencies. I created the project’s Baseline Schedule, incorporating critical path method, resources, and cost loading. I analyzed as-built drawings to assess existing conditions of canal crossings to provide recommendations on the best means and methods to incorporate into new construction. I generated RFIs based on continual constructability reviews of plans, specifications reviews, and conflicts encountered in the field. I generated change order requests based on review of contract scopes and determining additional work scopes. I reviewed submittals and shop drawings for conformance with the plans and specifications. Shop drawings were comprised of radial gates, concrete reinforcing, and concrete formwork. I analyzed site drainage and sedimentation flow to provide recommendations for BMPs into our Storm Water Pollution Prevention Plan. I taught and trained a junior engineer and engineering intern on the principles of surveying, plan reading, civil design, materials testing, CPM scheduling, construction documents control, and project management.

WORK EXPERIENCE

Erickson Hall Construction
California (United States)
Project Manager
November 2023—April 2024

Verified by
Anthony Han
ahan@ericksonhall.com

Experience Summary
Full-Time
Engineering: 5 months
Post EAC degree: 5 months
Experience under licensed engineer: None

TASKS

*I am serving as the Project Manager in charge of construction and related field engineering.
*I am serving as the liaison between the Architect, Inspectors, Contractors, and Owner's Representatives for this project.
*I am analyzing site conditions with respect to OSHA safety guidelines for trenching, excavation, and fall protection and recommending and implementing safety measures.
*I reviewed and analyzed the crane lift plan for the storm trap system being installed.
*I continually inspect construction for quality and conformance to plans and specifications.
*I am reviewing scaffolding plans for conformance with respect to OSHA guidelines and calculating construction loads to review against capacities.
*I am reviewing submittals and shop drawings for conformance with the plans and specifications.
*I am reviewing and preparing monthly financial reports for our corporate office as well as the Owner's Representatives via Pay Applications and Change Order Summaries.

REPRESENTATIVE PROJECTS

Norwalk High School Athletic Facility Project

November 2023-Present

I was hired as the Project Manager for Erickson Hall Construction for the Norwalk High School Athletic Facility Project. The project is comprised of a structural steel frame building containing a full court gymnasium, offices, weight room, dance studio, boys and girls locker rooms and storage rooms. I am in charge of the project management duties including scheduling, cost management, document control, and providing construction and engineering recommendations for the client, the Norwalk-La Mirada Unified School District. I am analyzing site conditions with respect to OSHA safety guidelines for trenching, excavation, and fall protection and recommended and implemented safety measures. I reviewed and analyzed the crane lift plan for the storm trap system being installed. I continually inspect construction for quality and conformance to plans and specifications. I am reviewing scaffolding plans for conformance with respect to OSHA guidelines and calculating construction loads to review against capacities. I am reviewing submittals and shop drawings for conformance with the plans and specifications. I am reviewing and preparing monthly financial reports for our corporate office as well as the Owner's Representatives via Pay Applications and Change Order Summaries.

ADDITIONAL INFORMATION

TIME GAPS

Start Date	End Date	Explanation
June 1998	July 1999	I was in college during these years.

DANIEL GERRITY (17-895-65)

All work experience reviewed by two licensed professionals

DISCIPLINE: CIVIL

GENERAL

Applying To
Nevada

Application Type
Initial - PE

Application Date
04/24/2024

Citizenship
United States

SUMMARY

Engineering Experience after EAC degree
15 years, 5 months

Total Engineering Experience
15 years, 5 months

Experience under licensed engineer
15 years, 5 months

Disciplinary Action
None reported

ABET EAC

FE EXAM

PE EXAM

4+

EDUCATION

Bachelors in Civil Engineering (EAC)
Arizona State University
August 2000–May 2004

Masters in Civil & Environmental Engineering
Arizona State University
January 2005–May 2005

Doctorate in Civil & Environmental Engineering
Arizona State University
January 2005–May 2008

EXAMS

Fundamentals of Engineering (FE)
Arizona
April 2004

Principles and Practice of Engineering (PE)
Civil
Nevada
April 2024

LICENSES

Additional Licenses
None

WORK EXPERIENCE

Southern Nevada Water Authority
Nevada (United States)
Postdoctoral Researcher
October 2008—March 2011

Verified by
Eric Wert
eric.wert@snwa.com

Experience Summary
Full-Time
Engineering: 2 years, 5 months
Post EAC degree: 2 years, 5 months
Experience under licensed engineer: 2 years, 5 months

TASKS

I planned and coordinated research experiments to characterize the efficacy of secondary biological treatment and ozone treatment for the attenuation of trace organic compounds in water reuse applications. I was personally responsible for writing relevant proposals, scheduling and coordinating research activities, conducting relevant experiments, analyzing generated data, and disseminating summaries of the research through peer-reviewed publications and conference presentations. I was also involved in operating pilot-scale treatment processes and in the conceptual design of potable reuse treatment trains employing ozonation.

REPRESENTATIVE PROJECTS

WRF-08-05: Use of Ozone in Water Reclamation for Contaminant Oxidation and Disinfection, Las Vegas, Nevada, USA, 2009-2011; I planned, scheduled, coordinated, and conducted research experiments related to the use of ozone for trace organic compound attenuation in water reuse applications. I developed kinetic models to explain trace organic compound oxidation based on ozone and hydroxyl radical rate constants.

WRF-09-10: Use of UV and Fluorescence Spectra as Surrogate Measures for Contaminant Oxidation and Disinfection in the Ozone/H2O2 Advanced Oxidation Process, Las Vegas, Nevada, USA, 2009-2011, I planned, scheduled, coordinated, and conducted research experiments to identify surrogate measurements for estimating trace organic compound oxidation by ozone and hydroxyl radicals.

WORK EXPERIENCE

Trussell Technologies, Inc.
California (United States)
Senior Engineer
April 2011—July 2012

Verified by
Robert Shane Trussell
shanet@trusselltech.com

Experience Summary
Full-Time
Engineering: 1 year, 3 months
Post EAC degree: 1 year, 3 months
Experience under licensed engineer: 1 year, 3 months

TASKS

I evaluated engineering design alternatives for product water stabilization in desalination applications, which involved identifying design criteria, stoichiometric dosing requirements, and engineering economic analysis. I evaluated engineering design alternatives for control of algal growth in reclaimed water storage reservoirs, which involved considerations of inflow/outflow/storage volumes and peaking factors, acid/base speciation, reservoir mixing (e.g., compressor horsepower requirements), chemical dosing requirements (e.g., copper sulfate and chorine), and treatment plant upgrades for nitrification and/or biological phosphorus removal. I planned and oversaw an evaluation of ozonation to improve water quality for surface spreading of recycled water, which involved calculations to determine proper ozone doses, calculating percent attenuation of trace organic compounds, and engineering economic analysis to estimate costs for full-scale implementation.

REPRESENTATIVE PROJECTS

Name: Reuse-11-02: Equivalency of Advanced Treatment Trains for Potable Reuse
Location: Southern California, USA
Scope: International
Dates: 2011-2012
Description: I wrote a proposal to directly compare carbon-based advanced treatment (CBAT) against full advanced treatment (FAT) based on public health protection in potable reuse applications. I identified relevant unit treatment processes needed for each candidate treatment train. I planned experiments and associated water quality test plans to evaluate the performance of the treatment trains. I evaluated the performance of the treatment trains based on engineering design criteria and their ability to achieve compliance with relevant regulations. I planned and oversaw related ozonation experiments, and then I evaluated the feasibility of full-scale ozone implementation based on performance, public health protection, and cost.

Name: Mahr Water Quality Investigation and Algae Mitigation Strategies
Location: San Diego, California, USA
Scope: Local
Dates: 2011-2012
Description: I conducted a literature review and communicated scientific and engineering principles related to algal blooms and associated mitigation strategies. I identified potential engineering design solutions, and I contacted vendors whose technologies could be implemented to reduce algal growth in the reclaimed water storage reservoir. I recommended short-term and long-term strategies, including benefits/limitations associated with the various options. I summarized capital and O&M costs for the most promising design alternatives. I wrote a technical memorandum summarizing the findings and recommendations.

Name: Product Water Stabilization Alternatives
Location: Monterey, California, USA
Scope: Local
Dates: 2011-2012
Description: I identified the relevant stoichiometric equations and dosing requirements for product water stabilization in desalination applications. I contacted relevant vendors to obtain technology-specific information. I conducted a net present worth analysis to compare costs for the various design alternatives. I wrote a technical memorandum summarizing the findings and recommendations.

WORK EXPERIENCE

University of Nevada Las Vegas
Nevada (United States)
Associate Professor
July 2012—June 2019

Verified by
Sajjad Ahmad
sajjad.ahmad@unlv.edu

Experience Summary
Full-Time
Engineering: 6 years, 11 months
Post EAC degree: 6 years, 11 months
Experience under licensed engineer: 6 years, 11 months

TASKS

I started this position in 2012 as an Assistant Professor and was promoted to a tenured Associate Professor in 2018.

I spent ~40% of my time teaching undergraduate and graduate classes in the Department of Civil & Environmental Engineering and Construction (CEEC) at the University of Nevada Las Vegas (UNLV), which is an ABET-accredited engineering program. I taught a combined upper-division (i.e., senior-level) undergraduate and graduate course focused on the design of drinking water treatment systems: CEE 455/655 - Water Treatment Principles and Design. I taught graduate-level courses focused on the design of advanced water treatment and water reuse systems: CEE 751 - Water Reuse Applications and Design, CEE 755 - Advanced Physicochemical Methods for Water Treatment. I also supervised/mentored multiple CEE 498 Senior Design teams.

I spent ~40% of my time conducting engineering research on contaminants of emerging concern, quantitative microbial risk assessment, and the sustainability of potable reuse treatment frameworks. I wrote proposals to acquire external funding to support these projects. Once funded, I planned experiments/test plans, I reviewed student design calculations, and I disseminated research findings through peer-reviewed publications and conference proceedings in engineering journals and conferences.

REPRESENTATIVE PROJECTS

Course Taught: CEE 455/655 - Water Treatment Principles and Design
Course Level: Senior-level undergraduate and graduate students
Course Content: The course goal is to help students acquire theoretical and practical knowledge related to conventional drinking water treatment and related unit processes. I introduced students to common water quality contaminants and regulatory frameworks. I introduced students to the common unit operations used in conventional drinking water treatment, including coagulation/flocculation, sedimentation, granular media filtration, chemical oxidation, disinfection, and granular activated carbon adsorption. I performed relevant design calculations for these unit treatment processes, including power requirements for coagulation/flocculation, settling velocities for characteristic particles, head loss calculations for granular media filters, Ct requirements for disinfection, and bed life estimates for adsorption contactors. I reviewed student calculations for a semester-long project in which they designed a conventional drinking water treatment plant to address a specific source water quality.

Course Taught: CEE 751 - Water Reuse Applications and Design
Course Level: Graduate students
Course Content: The course goal is to help students acquire an understanding of the drivers, advantages, limitations, and hurdles facing the implementation and design of water reuse systems throughout the world. I introduced students to case studies and the basis behind existing guidelines/regulatory framework, and I explained how water, wastewater, and advanced treatment systems can be integrated in a design to achieve adequate public health protection in water reuse applications. I reviewed student approaches and calculations for a semester-long project in which they designed a treatment train for nonpotable reuse, indirect potable reuse, or direct potable reuse.

Course Taught: CEE 755 - Advanced Physicochemical Methods for Water Treatment
Course Level: Graduate students
Course Content: The course goal is to help students gain an understanding of the fundamental theories and conceptual basis for the physical and chemical processes used in the treatment of drinking water, industrial water supplies, and municipal, industrial, and hazardous wastewater. I explained fundamental concepts and performed calculations related to thermodynamics and kinetics; ideal vs. non-ideal reactors, including tracer studies; photolysis; and advanced oxidation. I reviewed student calculations for a culminating experience in which they evaluated the design of a ultraviolet advanced oxidation process reactor for a full-scale potable reuse system.

Research Project: U.S. Environmental Protection Agency (EPA) Early Career Award: Framework for Quantifying Microbial Risk and Sustainability of Potable Reuse Systems in the United States
Location: Las Vegas, Nevada, USA
Scope: National
Dates: 2015-2018
Description: I wrote a successful proposal to study the sustainability of carbon-based advanced treatment (CBAT) for potable reuse. I conducted quantitative microbial risk assessments (QMRAs) to characterize public health risks in potable reuse systems, and I proposed treatment designs to mitigate these risks. I designed and constructed a pilot-scale ozone-biofiltration system, and I planned associated experiments to evaluate the attenuation of contaminants of emerging concern at a water reclamation facility. I quantified the economic and environmental impacts of potable reuse in Southern Nevada, which involved a net present worth analysis for alternative treatment train designs and water resource scenarios. I served as the corresponding author on multiple peer-reviewed publications resulting from this project.

Research Project: Prediction of trace organic contaminant abatement with UV/H2O2: Development and validation of semi-empirical models for municipal wastewater effluents
Location: Las Vegas, Nevada, USA
Scope: International
Dates: 2016
Description: I wrote a peer-reviewed publication to describe the attenuation of trace organic compounds in international wastewaters using an ultraviolet-based advanced oxidation process. I developed empirical models, which were based on underlying engineering principles, to describe the normalization of UV dose to the dissolved organic carbon concentration in each wastewater.

WORK EXPERIENCE

Southern Nevada Water Authority
Nevada (United States)
Principal Research Laboratory Scientist
June 2019—April 2024

Verified by
Eric Wert
eric.wert@snwa.com

Experience Summary
Full-Time
Engineering: 4 years, 10 months
Post EAC degree: 4 years, 10 months
Experience under licensed engineer: 4 years, 10 months

TASKS

I prepared and submitted successful proposals for externally funded research related to high pressure membrane integrity verification, wastewater surveillance for chemical and microbial markers of public health (e.g., SARS-CoV-2), broadening implementation of potable reuse throughout the United States, and crediting virus removal/inactivation during secondary biological wastewater treatment. For these research projects, I planned experiments and developed test plans, and I conducted or reviewed engineering calculations related to hydraulics (e.g., mixing/dispersion in non-ideal reactors), contaminant attenuation (e.g., virus log reduction values for membrane-based treatment), the design of activated sludge systems (e.g., solids retention time and mixed liquor suspended solids concentrations), and mass loadings to sewers or receiving waters. I used Matlab to develop a model for estimating COVID infections based on observed wastewater concentrations of SARS-CoV-2. I used the R statistical package to develop a web-based quantitative microbial risk assessment (QMRA) tool, which was subsequently used by California regulators to develop direct potable reuse (DPR) regulations.

REPRESENTATIVE PROJECTS

Project: Wastewater surveillance of SARS-CoV-2, Candida auris, and high risk substances in Southern Nevada
Location:, Las Vegas, Nevada, USA
Scope: Regional
Dates: 2020-2024
Description: I led the development and implementation of a regional wastewater surveillance program. I coordinated sample collection with wastewater agencies, I oversaw analysis of samples, and I interpreted the results for wastewater partners, public health officials, policymakers, and other stakeholders. I calculated loadings to each wastewater treatment plant and developed models based on pathogen shedding or compound metabolism to determine changes in infection incidence (e.g., COVID; https://doi.org/10.1016/j.scitotenv.2022.155410) or consumption of high risk substances (e.g., fentanyl; https://doi.org/10.1016/j.scitotenv.2023.168369) over time. I used hydraulic principles (e.g., mixing/dispersion) to characterize the attenuation of peak concentrations within sewer collection systems and wastewater treatment plants. I wrote a peer-reviewed journal article describing the hydraulics analysis and its implications for the design of potable reuse systems (https://doi.org/10.1021/acsestwater.1c00378).

Project: Developing surrogate-based crediting frameworks for virus control through water recycling facilities
Location: Las Vegas, Nevada, USA
Scope: National
Dates: 2022-2024
Description: I wrote a successful proposal to the U.S. Environmental Protection Agency to study the removal/inactivation of viruses during secondary biological wastewater treatment, specifically in the context of varying solids retention time (SRTs). I oversaw the design of a bench-scale, automated activated sludge system. I reviewed engineering calculations to determine the required operational conditions and the resulting performance of the bench-scale system. I recommended a preliminary framework for evaluating virus removal in activated sludge systems based on solids partitioning and subsequent removal.

Project: Use of ozone for 1,4-dioxane attenuation in potable reuse applications
Location: Las Vegas, Nevada, USA
Scope: National
Dates: 2023-2024
Description: I used bench-scale data to describe the kinetics of 1,4-dioxane oxidation during ozonation of secondary wastewater effluent. I wrote a peer-reviewed journal article summarizing the findings (https://doi.org/10.1080/01919512.2023.2277238) and shared the information with Arizona regulators tasked with developing direct potable reuse (DPR) regulations in the state.

Project: Establishing pathogen log reduction value targets for direct potable reuse in the United States
Location: Las Vegas, Nevada, USA
Scope: National
Dates: 2021-2023
Description: I used principles of quantitative microbial risk assessment (QMRA) to identify treatment design targets for pathogen attenuation, specifically in the context of protecting public health in direct potable reuse (DPR) applications. I wrote a peer-reviewed publication summarizing the findings (https://doi.org/10.1002/aws2.1353), and I provided related guidance to California and Arizona regulators as they developed DPR regulatory frameworks in those states. I developed a web-based QMRA tool using the R statistical software package that can be used to inform the development of potable reuse design criteria (https://cawaterdatadive.shinyapps.io/DPRisk/).

ADDITIONAL INFORMATION

TIME GAPS

Start Date	End Date	Explanation
June 2004	December 2004	I was a full-time student at Arizona State University during this time, specifically from May 2004 through May 2008. The period identified (June 2004 through December 2004) was part of my M.S.E. degree.

MOHAMMAD ISLAM (19-949-59)

All work experience reviewed by two licensed professionals

DISCIPLINE: CIVIL

GENERAL

Applying To
Nevada

Application Type
Initial - PE

Application Date
04/13/2024

Citizenship
United States

SUMMARY

Engineering Experience after EAC degree

Total Engineering Experience
8 years, 5 months

Experience under licensed engineer
6 years

Other Experience
5 months

Disciplinary Action
None reported

FE EXAM

PE EXAM

NCEES EDU

4+

EDUCATION

Meets NCEES Engineering Education Standard

Bachelors in Civil Engineering
Bangladesh University of Engineering and Technology
October 1999–November 2004

Masters in Civil Engineering
Concordia University
January 2007–May 2010

Doctorate in Civil and Environmental Engineering
University of Nevada, Las Vegas
January 2010–May 2015

EXAMS

Fundamentals of Engineering (FE)
Nevada
April 2010

Principles and Practice of Engineering (PE)
Civil
Nevada
March 2024

LICENSES

Additional Licenses
None

MOHAMMAD ISLAM (19-949-59)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Techno Builders
Dhaka (Bangladesh)
Project Engineer
December 2004—December 2006

Verified by
Mohammad Islam (Self)

Experience Summary
Full-Time
Engineering: (0%)
Experience under licensed engineer: None

TASKS

I supervised the construction activities of multi storied residential buildings. I created daily report of the project status. I was also responsible for the overall project safety and quality.

REPRESENTATIVE PROJECTS

Nine (9) storied reinforced concrete building with pile foundation. I verified that the reinforcement of the footings , columns, beams and decks are placed based on the approved design documents. I also checked concrete mix design and collected samples for compressive strength tests. I also ensured the project complete on time and on budget.

WORK EXPERIENCE

Nevada State College
Nevada (United States)
Mathematics Instructor
May 2015—November 2015

Verified by
Aaron Wong
Aaron.Wong@nsc.nevada.edu

Experience Summary
Part-Time
Other: 5 months (75%)
Experience under licensed surveyor: None

DESCRIPTION

MOHAMMAD ISLAM (19-949-59)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Florida Department of Transportation
Florida (United States)
Field Operation Specialist III
November 2015—April 2018

Verified by
Rodrigo Pereira Antunes
rodrigo.antunes@dot.state.fl.us

Experience Summary
Full-Time
Engineering: 2 years, 5 months
Experience under licensed engineer: None

TASKS

I supervised nondestructive evaluation (NDE) of bridge (concrete or steel) structural elements.
I determined the necessary retrofit require for a specific structure.
I addressed contractors RFI for installation of a cathodic protection on a bridge structure.
I also provided assistance to the technical committee to evaluate and research proposal submitted to the department for NCHRP projects.
I performed research on galvanic cathodic protection for high resistance concrete in marine environments.

REPRESENTATIVE PROJECTS

The Seven Mile Bridge in Monroe County, Florida. I supervised the work pertaining extracting concrete cores from decks, girders, piers based on the deterioration, crack measurements then conducted the lab tests according to ASTM standards for concrete strength and chloride penetration. Also, run field tests to determine the level of corrosion in the rebars. Finally, I did the structural analysis to determine the severity of the deterioration and type of retrofit require to mitigate it.
Bridges in Key West Florida. I supervised the galvanic cathodic protection installation in several bridges in the Keys. I collected the data remotely or on site to determine the efficiency and performance compare to other cathodic protection measures.

MOHAMMAD ISLAM (19-949-59)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

SIGMA Engineering Solutions
Nevada (United States)
Project Engineer
April 2018—April 2024

Verified by
Joseph Emil Farre
JFarre@sigmanv.com

Experience Summary
Full-Time
Engineering: 6 years
Experience under licensed engineer: 6 years

TASKS

Structural Analysis: Conducting structural analysis and calculations to ensure that designs and demolition procedures meet the code requirements and performance standards. Performed evaluation and design on structures and structural components ranging from small structures like retaining wall, slab on grade, and footings to larger structures.

Design Development: Creating detailed designs for structural components of buildings, or other infrastructure projects.

Project Planning: Collaborating with architects, designers, and other engineers to develop project plans and specifications.

Code Compliance: Ensuring that designs comply with relevant building codes, state and local regulations, and industry standards.

Material Selection: Selecting appropriate materials for construction based on structural requirements, cost considerations, and environmental factors.

Quality Control: Implementing quality control measures to ensure that construction work meets design specifications and industry standards.

Demolition Risk Assessment and Mitigation: Identifying potential risks and hazards associated with demolition projects and developing strategies to mitigate them.

Client Communication: Interacting with clients to understand their requirements, address concerns, and provide updates on project progress.

Documentation: Maintaining accurate records and documentation throughout the project lifecycle, including drawings, reports, and correspondence.

Building Inspections: Conducting inspections to ensure safety , stability and compliance with specifications.

Budgeting and Cost Estimation: Estimating project costs, preparing budgets, and monitoring expenses to ensure that projects remain within budgetary constraints.

REPRESENTATIVE PROJECTS

Las Vegas Convention Center Expansion, Nevada: This project consists of constructing a new Meeting Room Block structure and cast-in-place retaining wall design along the south end perimeter of the new exhibit hall. I assisted the Sigma team with the Concrete Frame Analysis that was performed using Bentley Engineering's RAM Structural system to both analyze and design the Meeting Room concrete beams, columns, and shear walls. The steel roof elements were designed by others, but included in the model, to ensure that all loadings are properly accounted for. The selection of dimensions for the slab edges, types and thicknesses, as well as the span directions, openings and penetrations were all considered, as part of the design process, and match the design drawings in location, size, and shape. The loads used to design the gravity frame include both self-weight and superimposed loads. Additional superimposed dead and live loads were added to match what is shown on the design drawing load maps. Area live loads were reduced on an element-by element basis in accordance with ASCE 7 and Line loads were added in accordance with the load maps to account for the weight of cladding, heavy partitions, operable partitions, and other localized loading conditions. Finally, point loads were added for concentrated dead and live loads, such as rigging, attachment points, stair stringers, escalators, and other concentrated loads. Live load skipping was considered in the design of beams and their supporting elements.
I facilitated coordination and meetings with stakeholders to ensure adherence to budget and schedule. Additionally, I conducted

thorough reviews and approved shop drawings of the Main Hall Building. I also reviewed and approved contractor submittals and RFIs.
Las Vegas Convention Center- Phase Three- Sequence B, Las Vegas, Nevada: This was a remodeling project that covers various areas of the existing building. I assisted my team to do the structural calculation of removing the existing Skylight and providing a new roof framing, Roof mechanical unit steel support.
International Airport Houston (IAH), Texas: I acted as an on-site engineer expert to monitor demolition works of Terminal C, D. I contributed to daily safety meetings to address safety concerns effectively while ensuring compliance with local building and safety codes.
Elaine K Smith Center, Boulder City, Nevada: I conducted site inspections to assess the condition of existing building, providing recommendations for repairs, rehabilitation, or replacements. I provided detailed damaged report, design scoping reports, inspection reports and scope of work statements.
SR-99 Viaduct, Seatle, Washington: I performed evaluation multi-level viaduct using finite element analysis 3D model to ensure the demolition was completed by the safest, most efficient means possible. It includes concrete structures, pre-cast girder ramps, and steel pedestrian walkways.
Eagle Sign Masonry Fence Wall, Boulder City, Nevada: This project consists of the structural design of a 15' masonry fence wall and foundation. The objective of this task was to provide a safe and suitable design for the Eagles Sign Masonry Fence Wall. The foundation was conventionally reinforced concrete, and the wall is designed with 12" CMU block. I did the structural calculations based on the requirements from the 2018 International Building Code Southern Nevada Amendments, the TMS 402-16 Building Code Requirements and Specification for Masonry Structures, the American Concrete Institute (ACI-318) 2014 edition, and ASCE/SEI 7-16 Minimum Design Loads for Buildings and other Structures.
WSDOT Bridge 221 Demolition, Seattle, Washington: I performed the structural analysis and evaluation of contractor preparatory work plans. I designed the construction temporary structures such as shoring, scaffolding, etc. I also designed steel platforms to support demolition activity.

ADDITIONAL INFORMATION

TIME GAPS

Start Date	End Date	Explanation
April 1998	September 1999	Taking various professional development training and classes.

NICHOLAS MORROW (18-531-73)

All work experience reviewed by two licensed professionals

DISCIPLINE: CIVIL

GENERAL

Applying To
Nevada

Application Type
Initial - PE

Application Date
04/09/2024

Citizenship
United States

SUMMARY

Engineering Experience after EAC degree
5 years, 10 months

Total Engineering Experience
5 years, 10 months

Experience under licensed engineer
5 years, 10 months

Disciplinary Action
None reported

ABET EAC
FE EXAM
PE EXAM
4+

EDUCATION

Bachelors in Civil Engineering (EAC)
University of Nevada, Reno
August 2014–May 2018

EXAMS

Fundamentals of Engineering (FE)
Nevada
April 2018

Principles and Practice of Engineering (PE)
Civil
Nevada
March 2024

LICENSES

Additional Licenses
None

NICHOLAS MORROW (18-531-73)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Stantec Consulting
Nevada (United States)
Bridge Inspector
June 2018—April 2024

Verified by
Michael Darrel Marshall
Michael.Marshall@stantec.com

Experience Summary
Full-Time
Engineering: 5 years, 10 months
Post EAC degree: 5 years, 10 months
Experience under licensed engineer: 5 years, 10 months

TASKS

I started as a team assistant where I helped in the mobilization effort of inspections, assisted in field inspections, entered field notes, provided quality control check on reports and assisted in the submittal process.

I became a Nationally Certified Bridge Inspector (via NHI) and began leading bridge inspections for multiple different agencies. I conducted routine, inventory, special, and damage inspections. As a team lead I lead team assistants from mobilization through submittal of reports to the client. I was responsible for organizing my inspections in an efficient and cost effective manner. I took detailed inspection notes, referenced plans in case of damage to primary load members and helped recommend structure specific maintenance to the structure owners to extend the life of the structure. Inspection required the knowledge to assess the importance of damage sustained to a structure and the severity of the defect to appropriately recommend maintenance. In some cases the assessment resulted in an urgent maintenance and/or a critical inspection finding due to severity and risk to the traveling public.

I passed my NHI Fracture Critical Class and began to conduct Fracture Critical inspections as well. This class also provided me training in Non-Destructive Testing methods to for assessing damage to different material. These Inspection required additional attention to detail due to the potential for partial or full collapse of the structure. Now that I am an experienced team lead, I have assisted in writing and reviewing proposals for different agencies. This requires the use of generating schedules to keep the team on a cost effective and efficient path.

REPRESENTATIVE PROJECTS

Nevada Statewide Bridge Inspection and Analysis Services
I have worked on this project since my start of employment in 06/2018. This project has had me conducting work throughout all of Nevada. I have conducted Inspections include routine, fracture critical, special, and damage per the NBIS. I manage mobilization including scheduling and mapping inspection events for our staff and subconsultants. I conducted QA/QC procedures for inspection reporting. I have conducted hundreds of inspections and issued numerous Critical Inspection Finings due to defects and potential danger to the traveling public based on analyzing severity of defects to primary load carrying members. I conducted NDT testing methods to assess damage to primary members to the structures.

ADOT Bridge Inspection On-Call Statewide, Arizona, USA
I worked on this project from 07/2022-09/2023. I served as a team assistant for the Arizona Bridge Inspection contract that ranges across the southeast and northeast regions of Arizona. Inspections included routine and fracture critical. I mobilized for inspections, took detail field inspection notes, entered reports and assisted in quality control of reports.

North Dakota Bridge Inspection and Load Rating for Local Public Agency and Privately Owned Bridges
This project was located in North Dakota near Fargo. I took part in inspections from 2020-2021. As a team assistant I took detailed inspection notes and document findings with drawings and photographs. I took detailed field measurements of structures to conduct load rating analysis on.

City of Reno Bridge Inspection
I completed inspections of local bridges in the Reno, Nevada area for the City of Reno in 2019 and 2021. I conducted inspections of the structures and took detailed measurements of bridges to allow for calculations for load rating analysis and lane restrictions.

CARLOS MURILLO (17-568-83)

All work experience reviewed by two licensed professionals

DISCIPLINE: CIVIL

GENERAL

Applying To
Nevada

Application Type
Initial - PE

Application Date
04/10/2024

Citizenship
United States

SUMMARY

Engineering Experience after EAC degree
6 years, 10 months

Total Engineering Experience
7 years, 10 months

Experience under licensed engineer
7 years, 10 months

Disciplinary Action
None reported

ABET EAC

FE EXAM

PE EXAM

4+

EDUCATION

Non-degree
De Anza Community College
June 2007–May 2010

Bachelors in Civil Engineering (EAC)
San Jose State University
August 2010–May 2017

EXAMS

Fundamentals of Engineering (FE)
California
June 2017

Principles and Practice of Engineering (PE)
Civil
California
April 2018

LICENSES

Additional Licenses
None

CARLOS MURILLO (17-568-83)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Graniterock
California (United States)
Project Engineer
May 2016—July 2019

Verified by
David Bates Kennedy
dkennedy@graniterock.com

Experience Summary
Full-Time
Engineering: 3 years, 2 months
Post EAC degree: 2 years, 2 months
Experience under licensed engineer: 3 years, 2 months

TASKS

Oversee the construction site and monitoring progress while managing resources. Responsible for managing project during construction including managing subcontractors, stakeholder coordination at various levels including field crews and owner, track productions and costs, manage change orders from subs and to owner. Responsible for ensuring quality standards are met for all materials being installed. Responsible for ensuring safe operations and protocols while complying with building codes and regulations.

REPRESENTATIVE PROJECTS

SFO Contract No. 10005.6 - Taxilanes H & M Realignment Project - $30M, Capital Improvement Project, Design Bid Build, Involved from September 2016 - July 2018. Scope includes relocation and construction of two new taxilanes to enable the expansion of Terminal 1 at SFO. I developed a construction schedule, monitored construction activity. Review plans, technical specifications and technical documents to ensure constructability and conformance with requirements during construction. I managed the project during construction, analyzed risks and develop solutions for potential impacts to schedule, costs, or scope.

SFO Contract No. 10010.41 - Terminal 1 - Boarding Area B Project at SFIA - subcontract value $15M, Capital Improvement Project, Design Build, Involved from May 2018 - July 2019. Subcontract scope included backfilling subgrade between foundations with pea gravel and slurry. I developed a construction schedule, monitored progress and tracked any potential issues for a quick resolution. Review plans, technical specifications for conformity & constructability. I managed the project during construction, analyze risks and develop solutions for potential impacts to schedule and costs.

CARLOS MURILLO (17-568-83)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

City of San Jose
California (United States)
Associate Engineer
August 2019—April 2024

Verified by
Fai Ali
Fali@sjc.org

Experience Summary
Full-Time
Engineering: 4 years, 8 months
Post EAC degree: 4 years, 8 months
Experience under licensed engineer: 4 years, 8 months

TASKS

Prepare scope, schedule, city standard specifications and estimates for projects in the Airport Capitol Improvement Program. Review plans, technical specifications and technical documents for conformity & constructability. Engage and coordinate with project stakeholders (FAA, TSA, etc.) to ensure projects are compliant with all applicable standards and requirements. Identify and manage project risks, monitor potential impacts to schedule, costs or scope through the construction phase. Analyze contractor claim review and manage negotiations. All work developed is subject to review by a registered engineer.

Responsible for professional integrity of designs for civil projects. Provide guidance and expertise to engineers-in-training. Oversee and implement the Airport's Capital Improvement Plan. Coordinate with regulatory agencies to ensure Airport projects maintain grant eligibility. Analyze data and existing conditions to develop recommendations for airport infrastructure development. Review and evaluate designs and bid proposals.

Develop solutions for environmental, contractual, and regulatory compliance issues/disputes then evaluate alternatives & determine best option. Analyze Quality Assurance test results for compliance with FAA standards. In field design modifications for unforeseen circumstances. Provide in field knowledge of Airfield Geometric design for inspections and to ensure conformance with design and FAA advisory circulars.

REPRESENTATIVE PROJECTS

10168 - SJC Waste Disposal and Fuel Station relocation with a value of $6M, San Jose/CA/United States, Capital Improvement Project, Design Bid Build, Involved since May 2020 - Present. Scope includes construction of a new Waste Disposal Facility, and a new above ground Fuel Storage & Dispensing Facility. I developed scope, schedule, specifications and budget. Review plans, technical specifications and technical documents for conformity & constructability. Reference the CBC and coordinate with project stakeholders such as FAA, TSA to ensure
project is compliant with all applicable standards and regulations. Manage project during construction, analyze risks and develop solutions for potential impacts to schedule, costs, or scope.

10131 - SJC Admin Lot Safety Upgrades with a value of $2M, San Jose/CA/United States, Capital Improvement Project, Design Bid Build, Involved since July 2022 - Present
Scope includes safety upgrades to the roadway intersection at Airport Parkway and Airport Boulevard, and to SJC's Administration Parking Lot. Upgrades include protective guardrail barriers and crash cushions along the east and south side of the parking lot, reconfiguration and construction of a new crosswalk along Airport Boulevard, curb and gutter, new ADA sidewalk and ramp, installation of new rapid reflecting flashing beacons. I developed scope, schedule, specifications. Review plans, technical specifications and technical documents for conformity & constructability. Reference the local ordinances and coordinate with project stakeholders such as DOT, Valley Water to ensure
project is compliant with all applicable standards and regulations. Manage project during construction, analyze risks and develop solutions for potential impacts to schedule, costs, or scope.

8704 - SJC TSA Magazine Relocation Project with a value of $2.5M, San Jose/CA/United States, Capital Improvement Project, Design Bid Build, Involved since August 2020 through December 2023 . Scope includes relocation of SJC/TSA's K9 Explosive Training Aid Storage Magazines (CETASMs) to a southwest corner of the Airport's Economy Lot 1 parking lot. Construction of a new CETASM enclosure and relocating the CETASMs to the new enclosure. I developed scope, schedule, specifications and budget. Review plans, technical specifications and technical documents for conformity & constructability. Reference the CFC and coordinate with project stakeholders such as SJPD, TSA to ensure project is compliant with all applicable standards and regulations. Manage project during construction, analyze risks and develop solutions for potential impacts to schedule, costs, or scope.

SJC New Taxiway Victor Program estimated at $75M broken up into multiple phases/projects, San Jose/CA/United States, Capital Improvement Project, Design Bid Build, Involved since July 2022 - Present (estimated program completion in 2027). Scope includes construction of new Taxiway Victor structural pavement including connector stubs, and includes installation of drainage improvements, grading improvements, installation of new airfield lighting and signage. I developed scope, schedule, specifications and budget. Review plans, technical specifications and technical documents for conformity & constructability. Reference the FAA Advisory Circulars and coordinate with project stakeholders such as FAA, TSA to ensure project is compliant with all applicable standards and regulations. Manage project during construction, analyze risks and develop solutions for potential impacts to schedule, costs, or scope.

VINAYAK SACHIDANANDAM (17-401-49)

All work experience reviewed by two licensed professionals

DISCIPLINE: CIVIL

GENERAL

Applying To
Nevada

Application Type
Initial - PE

Application Date
04/22/2024

Citizenship
India

SUMMARY

Engineering Experience after EAC degree

Total Engineering Experience
9 years, 10 months

Experience under licensed engineer
7 years, 7 months

Disciplinary Action
None reported

PE EXAM

FE EXAM

NCEES EDU

4+

EDUCATION

Meets NCEES Engineering Education Standard

Bachelors in Civil Engineering
Indian Institute of Technology - Kharagpur
July 2005–August 2009

Masters in Civil and Environmental Engineering
Stanford University
September 2012–April 2014

EXAMS

Principles and Practice of Engineering (PE)
Civil
Nevada
March 2024

Fundamentals of Engineering (FE)
Nevada
March 2024

LICENSES

Additional Licenses
None

WORK EXPERIENCE

Indian Oil Corporation Limited
Kerala (India)
Engineering Officer
July 2009—April 2012

Verified by
Vinayak Sachidanandam (Self)

Experience Summary
Full-Time
Engineering: (0%)
Experience under licensed engineer: None

TASKS

During my role as Engineering Office at Indian Oil Corporation, I played a central role in various LPG infrastructure projects, including the design, estimation, supervision, and bidding processes. This encompassed overseeing the construction of an LPG import terminal valued at $1 million, which involved a range of civil works. Additionally, I successfully commissioned a 24-point Carousel system capable of filling 28 Liquified Petroleum Gas (LPG) cylinders (14.2 Kg) per minute, obtaining all necessary statutory licenses for the installation. I contributed to the design, estimation, supervision, and bidding processes for the construction of LPG Mounded Storage with a capacity of 2400 MT, amounting to $3.4 million.

REPRESENTATIVE PROJECTS

Representative Projects
Project: (2009-2010): Cochin LPG Import Terminal, India
Involved in Design, Estimation, Supervision, and bidding processes for the construction of an LPG import terminal with a value of $1 million, encompassing a range of civil works.

Project: (2010-2012): Quilon LPG Plant, India
I successfully commissioned a 24-point Carousel system capable of filling 28 Liquified Petroleum Gas (LPG) cylinders (14.2 Kg) per minute, obtaining all necessary Statutory Licenses for the installation. Additionally, under my supervisor, I played a key role in the design, estimation, supervision, and bidding processes for constructing LPG Mounded Storage with a capacity of 2400 MT, valuing at $3.4 million.

VINAYAK SACHIDANANDAM (17-401-49)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Jensen Hughes
Massachusetts (United States)
Engineer III
April 2014—June 2018

Verified by
Keith Xu
k.xu@comcast.net

Experience Summary
Full-Time
Engineering: 4 years, 2 months
Experience under licensed engineer: 4 years, 2 months

TASKS

During my tenure at Jensen Hughes (2014-2018), I worked on different aspects of Seismic Probabilistic Risk Assessment studies for multiple Nuclear Power Plants, including VC Summer (South Carolina), Donald C. Cook (Michigan), and Hanul (Korea). I developed large-scale 3D structural building models (Reactor Building, Control Building, Intermediate Building) in ANSYS, a finite element software. I performed dynamic response analysis, accounting for complex soil-structure interaction dynamics. I generated and validated synthetic time histories for various response spectra and for different soil cases using guidance from NUREG-800 and USNRC NUREG/CR-6798 for use in performing response analysis. I conducted seismic fragility analysis for a wide range of structures, systems, and components, which included equipment such as large tanks, pumps, heat exchangers, electrical cabinets, and generators. For the fragility analysis, I calculated the anchorage capacity for each of the equipment listed above. I evaluated the structural integrity of critical infrastructures against extreme scenarios, such as impact from tornado missiles and seismic events.

REPRESENTATIVE PROJECTS

Project: VC Summer Nuclear Station, DC Cook Nuclear Station (2014-2016)
I conducted Seismic Probabilistic Risk Assessment studies for VC Summer, Donald C. Cook Nuclear plants. I developed large-scale 3D structural models of the Intermediate Building and the Control Building. The Finite element model in ANSYS had over 28,000 elements and 2000 modes. I performed dynamic response analysis, including soil-structure interaction. I generated artificial time histories which was used as seismic input for the 3D structural models. I analyzed and evaluated various structures, systems and components when subjected to seismic loading, which includes calculating the anchorage capacity.

Project: Oconee Nuclear Station, LaSalle Nuclear Station, Cook Nuclear Plant (2016-2018)
I evaluated the structural integrity of beams, slabs and columns at the Oconee Nuclear Station (SC) when subjected to an impact from a tornado missile (car, wood, steel pipe). I evaluated the seismic capacity of masonry block walls and columns of LaSalle County Nuclear Generating Station (IL). I conducted detailed structural evaluations of steel members and attached hardware for gang hangers at Cook Nuclear Plant (MI) when subjected to seismic loading.

VINAYAK SACHIDANANDAM (17-401-49)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Holtec International
Pennsylvania (United States)
Senior Structural Engineer
August 2018—June 2020

Verified by
Anveshan Bommareddi
A.Bommareddi@holtec.com

Experience Summary
Full-Time
Engineering: 1 year, 10 months
Experience under licensed engineer: None

TASKS

During my role as Senior Structural Engineer at Holtec International, I conducted static, dynamic, and seismic analyses of structures and components utilized in the storage and transport of Spent Nuclear Fuel. I conducted stability analysis of nuclear fuel storage casks and transport devices under various extreme conditions such as explosion pulses and tornado missiles.

REPRESENTATIVE PROJECTS

Project: Nuclear Plants at KRSKO NP, Hinkley Point NP, Nine Mile Point NP, Byron Generating Station, Braidwood NP, Pilgrim NP, RE Ginna NP (2018-2020)
I performed static, dynamic and seismic analysis of structures and components used in Spent Nuclear Fuel (storage and transport) in accordance with ASME BPV, ASCE, ACI and NUREG standards. I designed and analyzed equipment for handling Nuclear Spent Fuel per NUREG and ANSI standards, and AISC manual. I closely worked with mechanical designers and engineers from other divisions to optimize the final design, and create the model in Solidworks. I performed the stability analysis of nuclear fuel storage casks and transport devices subjected to seismic loads, explosion pulses and tornado missiles, using MATLAB and Mathcad.

VINAYAK SACHIDANANDAM (17-401-49)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

SC Solutions
California (United States)
Senior Structural Engineer
June 2020—September 2023

Verified by
Iman talebinejad
italebinejad@structint.com

Experience Summary
Full-Time
Engineering: 3 years, 3 months
Experience under licensed engineer: 3 years, 3 months

TASKS

During my tenure as Senior Structural Engineer at SC Solutions, I undertook a range of tasks with significant responsibility in seismic certification and design. These tasks included conducting seismic certification of Mission Critical (MC-1) Equipment. I designed seismic protection and bracing for nonstructural components in Risk Category V, and performed anchorage calculations for MC-1, MC-2, and NMC equipment. I constructed 3D Finite Element models in ADINA and performed a series of nonlinear time-history analyses.

REPRESENTATIVE PROJECTS

Project: Bay Area Rapid Transit (BART) Transbay Tube (TBT) retrofit project, California (2020-2021)
I constructed a 3D Finite Element global model in ADINA and performed a series of nonlinear time-history analyses of the San Francisco Transition Structure (SFTS) and
trans-bay tube (TBT). I re-evaluated the seismic demand of the structure based on updated seismic ground motions.

Project: Fort Greely Communication Center, Alaska (Mission Critical Facility) (2021-2023)
I conducted seismic certification for various Mission Critical (MC-1) Equipment involving components such as exhaust fans, heat exchangers, air handling units, and tanks. I designed Seismic Protection & Bracing of Nonstructural Components in Risk Category V. I designed pipe supports, HVAC distribution supports, electrical cable conduits, etc. I updated and reviewed the 3D REVIT model and participated in weekly BIM meetings for coordination and clash detection. I collaborated with equipment suppliers, fabricators, and contractors to ensure the timely delivery of Certification Packages and drawings.

WORK EXPERIENCE

Tesla
Nevada (United States)
Senior Structural Engineer
September 2023—April 2024

Verified by
Sayantan Bhattacharya
sabhattacharya@tesla.com

Experience Summary
Full-Time
Engineering: 7 months
Experience under licensed engineer: 2 months

TASKS

During my role as Senior Structural Engineer at Tesla, I designed equipment support and bracing for various components such as Ducts, Pipes, Air Handling Units,
Compressors, tanks, etc. at Gigafactory, Cell Recycling plant and Warehouses. I designed and analyzed structural components including skids, pipe racks, platforms, wall and door openings, Scaffoldings, etc

REPRESENTATIVE PROJECTS

Representative Projects
Project: Facilities at GigaFactory, NV (2023-2024)
I designed and analyzed support and bracing systems for a range of equipment including ducts, pipes, air handling units, compressors, tanks, and more across multiple industrial facilities such as Gigafactory, Cell Recycling plants, and warehouses. This involved collaborating with diverse teams including process, mechanical, piping, and electrical engineers to deliver design drawings and calculations on time. I conducted site visits to assess existing conditions and provided structural expertise to ensure compliance with specifications throughout the design and construction phases, while also updating and reviewing REVIT structural models as needed.

DANE SOBOL (21-054-50)

All work experience reviewed by two licensed professionals

DISCIPLINE: CIVIL

GENERAL

Applying To
Nevada

Application Type
Initial - PE

Application Date
04/17/2024

Citizenship
United States

SUMMARY

Engineering Experience after EAC degree
2 years, 8 months

Total Engineering Experience
2 years, 8 months

Experience under licensed engineer
2 years, 8 months

Other Experience
1 year, 9 months

Disciplinary Action
None reported

ABET EAC

FE EXAM

PE EXAM

EDUCATION

Non-degree
Kapiolani Community College
June 2013–August 2013

Bachelors in Civil Engineering (EAC)
University of Hawaii at Manoa
August 2015–May 2020

Non-degree
Kapiolani Community College
June 2016–August 2016

Non-degree
University of Idaho at Moscow
January 2017–May 2017

Masters in Civil Engineering
University of Hawaii at Manoa
January 2020–May 2021

Non-degree
Lake Region State College
May 2022–December 2022

EXAMS

Fundamentals of Engineering (FE)
Hawaii
June 2020

Principles and Practice of Engineering (PE)
Civil
California
March 2024

LICENSES

Additional Licenses
None

WORK EXPERIENCE

University of Hawaii Chemistry Department
Hawaii (United States)
Student Stockroom Worker
September 2016—October 2016

Verified by

Experience Summary
Part-Time
Other: 1 month (25%)
Experience under licensed surveyor: None

DESCRIPTION

WORK EXPERIENCE

University of Hawaii Student Housing Services *Hawaii (United States)* *Student Utility I* **May 2016—November 2016**	*Verified by*	*Experience Summary* **Part-Time** **Other: 2 months (25%)** **Experience under licensed surveyor:** **None**

DESCRIPTION

WORK EXPERIENCE

University of Hawaii Cancer Center
Hawaii (United States)
Student Researcher
June 2017—December 2017

Verified by

Experience Summary
Part-Time
Other: 3 months (50%)
Experience under licensed surveyor: None

DESCRIPTION

DANE SOBOL (21-054-50)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

HDR
Hawaii (United States)
Student Intern
June 2018—August 2018

Verified by

Experience Summary
Full-Time
Other: 2 months
Experience under licensed surveyor: None

DESCRIPTION

WORK EXPERIENCE

Pearl Harbor Naval Shipyard
Hawaii (United States)
Student Trainee
May 2019—December 2019

Verified by

Experience Summary
Part-Time
Other: 6 months (75%)
Experience under licensed surveyor: None

DESCRIPTION

WORK EXPERIENCE

International Tsunami Information Center *Hawaii (United States)* *Physical Science Student Trainee* **June 2020—September 2020**	*Verified by*	*Experience Summary* **Full-Time** **Other: 3 months** **Experience under licensed surveyor: None**

DESCRIPTION

WORK EXPERIENCE

Naval Information Warfare Center Pacific *Hawaii (United States)* *Student Trainee* **September 2020—August 2021**	*Verified by*	*Experience Summary* **Part-Time** **Other: 6 months (50%)** **Experience under licensed surveyor: None**

DESCRIPTION

WORK EXPERIENCE

Naval Facilities Engineering Systems Command Pacific
Hawaii (United States)
Civil Engineer
August 2021—August 2023

Verified by
Curtis Tetsuo Nagata
curtis.t.nagata.civ@us.navy.mil

Experience Summary
Full-Time
Engineering: 2 years
Post EAC degree: 2 years
Experience under licensed engineer: 2 years

TASKS

I worked in a land development role and airfield pavement engineer role in the Design and Construction Branch. Project descriptions will be general due to sensitive military projects. As a civil engineer assistant, I conducted engineering design; engineering calculations; preparation and review of engineering specifications; planning and design of engineering works; preparation and review of engineering plans and related documents; and engineering analysis.

REPRESENTATIVE PROJECTS

8/2021 to 12/2022: On a sensitive military project, I served in a land development role as an assistant civil engineer. I drafted sewer and water utility plans and profiles in Civil 3D. I reviewed and de-conflicted utilities. I reviewed sewer, water, drainage, and stormwater calculations to ensure compliance with the Unified Facilities Criteria (UFC). I edited markups using Civil 3D for erosion control plans, general notes, site plans, utility and profile plans.

12/2022 to 8/2023: On a sensitive military project, I served in a land development role as an assistant civil engineer. I performed the designs of culverts, grassed swales, stormwater pre- and post-development runoff volumes, grading calculations, and water and sewer utility calculations using Civil 3D, Hydraflow, and Excel. I determined the areas of cut and fill in Civil 3D to determine where to abandon existing water and sewer utilities. I used SpecsInTact to prepare and review engineering specifications related to pavement. I used Civil 3D to delineate areas on demolition site plans. I performed market research on various pavement products and produced product comparison tables.

8/2021 to 8/2023: On a sensitive military airfield project, I inspected airfield pavement in accordance with the UFC. I calculated sample inspection areas using AutoCAD and GIS to generate representative pavement sample areas, in accordance with the UFC. After inspection, I performed engineering analysis using statistics and cost estimates using pavement software, AutoCAD, and GIS. I modeled pavement deterioration rates using this pavement software. Finally, I recommended repair and reconstruction methods based on the analysis and UFC. Finally, I drafted the pavement recommendation reports for clients.

8/2021 to 8/2023: On a sensitive military airfield project, I reviewed a design charette report by ensuring comments from stakeholders were addressed in the report. I also assisted in drafting a RFI for a helipad clearance related issue. I used ESRI ArcGIS Pro to review A/E geotechnical boring related submittals.

DANE SOBOL (21-054-50)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

National Park Service
Colorado (United States)
Civil Engineering Project Specialist
August 2023—April 2024

Verified by
Joshua Scott Hooper
joshua_hooper@nps.gov

Experience Summary
Full-Time
Engineering: 8 months
Post EAC degree: 8 months
Experience under licensed engineer: 8 months

TASKS

Serving as a Civil Engineering Project Specialist in a Project Management Office on the owner's side. The following projects are phrased in a general way because of non-public government information. Tasks included the review of engineering specifications; design and construction oversight of engineering works; review of engineering plans and related documents; and/or engineering Analysis.

REPRESENTATIVE PROJECTS

08/2023 to 04/2024: Seawall Repair Project. As a Civil Engineering Project Specialist, I reviewed engineering specifications of water utility conflicts to determine contractor responsibilities. I prepared four records of negotiations for modified construction work. I provided construction oversight of engineering works by conducting site visits to monitor project progress in comparison to the construction schedule and inspected deficient work. I used engineering analysis by inspecting the seawall, recording shrinkage cracks, and recommending methods to repair these cracks. I used ProjectTeams Construction Management Software to track submittals.

08/2023 to 04/2024: Facility Rehabilitation on North and South Islands. As a Civil Engineering Project Specialist, I provided design oversight of engineering works by reviewing Schematic Design Plans to ensure existing comments were addressed. I reviewed Design Development Plans and Drawings by providing comments to the A/E to clarify utility invert elevations and existing boundaries on plans. I drafted an Industry Day announcement for interested contractors. I developed internal cost estimates for contaminated soils and participated in negotiations with the A/E.

08/2023 to 04/2024: Historic Building Rehabilitation. As a Civil Engineering Project Specialist, I drafted a Title III cost estimate and scope of services document for construction A/E support services. I reviewed A/E cost estimates by comparing their estimate with the IDIQ contract. I participated in negotiations to reach a fair and reasonable cost estimate between the A/E and Government. I reviewed and tracked Division 1 submittals from the Construction Contractor. The reviewed submittals included a Stormwater Pollution Prevention Plan, Accident Prevention Plan, and Construction Schedule.

08/2023 to 04/2024: Rehabilitation of Historic Lodge and Utilities. I used ProCore Construction Management Software to track submittals. I reviewed invoices submitted by the construction contractor and clarified unclear line items in the invoice. I performed construction oversight by conducting a site visit to monitor current construction progress. At the site visit, I recommended which rocks in a wall to replace and which rocks to keep to lower costs and preserve the historic appearance of the rock wall. I also monitored current construction progress of new and repaired wet wells.

08/2023 to 04/2024: Rehabilitation of a monument. As a Civil Engineering Project Specialist on a Design-Build project, I drafted a Conceptual Site Plan using AutoCAD as part of a Statement of Objectives Document.

NICHOLAS WIKE (20-419-22)

All work experience reviewed by two licensed professionals

DISCIPLINE: CIVIL

GENERAL

Applying To
Nevada

Application Type
Initial - PE

Application Date
04/24/2024

Citizenship
United States

SUMMARY

Engineering Experience after EAC degree
2 years

Total Engineering Experience
2 years

Experience under licensed engineer
2 years

Other Experience
5 years, 4 months

Disciplinary Action
None reported

ABET EAC

FE EXAM

PE EXAM

EDUCATION

Non-degree
Texas A&M University
August 2009–May 2010

Associates in Science
Houston Community College
August 2016–August 2018

Bachelors in Civil Engineering (EAC)
Texas A and M University, College Station
August 2018–December 2020

Masters in Civil Engineering
Texas A and M University, College Station
January 2021–December 2021

EXAMS

Fundamentals of Engineering (FE)
Texas
January 2020

Principles and Practice of Engineering (PE)
Civil
California
January 2023

LICENSES

Additional Licenses
None

WORK EXPERIENCE

US Army *Texas (United States)* *Explosive Ordance Disposal Team Leader* **June 2011—October 2016**	*Verified by*	*Experience Summary* **Full-Time** **Other: 5 years, 4 months** **Experience under licensed surveyor:** **None**

DESCRIPTION

NICHOLAS WIKE (20-419-22)
All work experience reviewed by two licensed professionals

WORK EXPERIENCE

US Army Corps of Engineers
Texas (United States)
Project Engineer
February 2022—February 2024

Verified by
Brandon L Smolinsky
brandon.smolinsky@usace.army.mil

Experience Summary
Full-Time
Engineering: 2 years
Post EAC degree: 2 years
Experience under licensed engineer: 2 years

TASKS

Conduct reviews of engineering plans and specifications during the design process. Respond to bidder inquires concerning engineering plans and specifications while projects are out for bid. Coordinate with various stakeholders, including contractor personnel and local government officials. Oversee construction operations to ensure contractual requirements are met. Respond to RFIs for projects currently under construction. Review construction documents to ensure that contractual and regulatory requirements are met.

Perform technical analysis of contractor claims that are in dispute.
Evaluate contractor proposals to verify costs and durations were fair and reasonable.
Develop cost and time objectives for modification negotiations based on market research, historical projects, and other pertinent information.

REPRESENTATIVE PROJECTS

Sabine Pass to Galveston Bay Coastal Storm Risk Management Program: This is a coastal storm protection system that consists of earthen levee, sheetpile floodwall, drainage structures, and a vertical lift gate located in and around Freeport, Texas. The project is located in an industrial area, in close proximity to the Port of Freeport as well as several chemical refineries. My involvement with this project began in March 2022. I reviewed engineering plans and specifications from a construction standpoint, addressing issues such as construction access to secure areas, minimizing impact of construction to refinery operations, and managing environmental concerns.

Colorado River Flood Control Project: This is a system of earthen levees, drainage sumps, sluice gates and storm sewer improvements constructed along the Colorado River in the vicinity of Wharton, TX. This program consists of three major parts, Phase 1, Phase 2, and Baughman Slough. For Phase 1, I addressed bidder inquiries regarding the plans and specifications during the bidding process. During construction, I reviewed construction documents, such the storm water pollution prevention plan and environmental protection plan, to ensure contractual and regulatory requirements were met. I reviewed the baseline schedule and monthly schedule updates to track construction progress. I provided recommended courses of action to address RFIs submitted by the general construction contractor. I also performed quality assurance oversight of construction activities. For Phase 2 and Baughman Slough, I reviewed plans, specifications, and other design documents during the design period. My involvement with this project began in May 2022.

ADDITIONAL INFORMATION

TIME GAPS

Start Date	End Date	Explanation
June 2010	May 2011	Time between leaving college and leaving for basic training.

Control Systems

KUNAL RAITHATHA (15-864-39)

All work experience reviewed by two licensed professionals

DISCIPLINE: CONTROL SYSTEMS

GENERAL

Applying To
Nevada

Application Type
Initial - PE

Application Date
04/05/2024

Citizenship
India

SUMMARY

Engineering Experience after EAC degree

Total Engineering Experience
14 years, 2 months

Experience under licensed engineer
11 years, 10 months

Disciplinary Action
None reported

PE EXAM

4+

EDUCATION

Non-degree
Technical Exams Board - Technical Diploma in Electronics & Communication Engineering
July 2001–July 2004

Bachelors in Instrumentation Engineering
University of Mumbai
July 2004–May 2007

Masters in Electrical Engineering
University of Texas, Arlington
August 2008–May 2011

WAIVER REQUEST: NRS 625.183, item 1, part a, “Waiver of FE with 15 or more years of experience.”

NOTE:Applicant has a total of 13 years 5 months of experience that is not concurrent with his education and additional two years active experience acquired from his master’s degree, totaling 15 years 5 months of experience.

EXAMS

Waived Fundamentals of Engineering (FE)
Nevada
August 2023

Principles and Practice of Engineering (PE)
Control Systems
Nevada
October 2023

LICENSES

Additional Licenses
None

KUNAL RAITHATHA (15-864-39)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Rajiv Gandhi Institute of Technology
Maharashtra (India)
Lecturer
July 2007—July 2008

Verified by
Satish Satish Takalikar
sntakalikar@rediffmail.com

Experience Summary
Full-Time
Engineering: 1 year
Experience under licensed engineer: None

TASKS

I was responsible for conducting a lecture series for two consecutive semesters for Bachelor of Engineering students. The subjects I was tutoring were "Logic Circuits" for Instrumentation Engineering students and "Industrial Electronics" for Mechanical Engineering students. I conducted theory classes as well as practical lab sessions. The lab sessions included experiments and practical application usage examples of power electronic circuits and digital circuits such as sequential and combinational logic circuits. My other duties included guiding senior and final-year students on control system design projects using industrial electronics circuits and microcontrollers and writing control logic software in Matlab - Simulink.

REPRESENTATIVE PROJECTS

Logic Circuits - 2nd Year Instrumentation Engineering (Fall - 2007)

I conducted a lecture series for Instrumentation and Controls students in their Bachelors of Engineering program. The topics covered in the lecture series included a theory of digital number systems, logic gates and their application in the digital circuits. I prepared practical examples and applications to explain its industry usage and build the foundation required for microprocessors and advanced digital control systems. I was in charge of the overall class for delivering theory lectures and practical lab sessions, conducting tests/quizzes, verifying assignments, and checking lab journals for each student. I contributed to other department activities by assisting students in their academic projects, model building, and guidance on writing software applications for their final projects.

Industrial Electronics - 2nd year Mechanical Engineering (Spring 2008)

I conducted a lecture series for Mechanical Engineering students in their Bachelor of Engineering program. The topics covered in the lecture series included a theory of power electronics, power circuits and their application for mechanical engineers. I presented these topics in a simplified and different manner as mechanical engineering students struggled to understand electronics. I prepared a presentation on each case, including its practical usage in the industry and how it will benefit the students in their engineering careers. I was in charge of the overall class for delivering theory lectures and practical lab sessions, conducting tests/quizzes, verifying assignments, and checking lab journals for each student.

KUNAL RAITHATHA (15-864-39)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

NGS Research Lab/UT Arlington
Texas (United States)
Research Assistant
August 2010—June 2011

Verified by
Kunal Raithatha (Self)

Experience Summary
Full-Time
Engineering: (0%)
Experience under licensed engineer: None

TASKS

Description of Engineering Tasks & Duties: NGS was a Robotics Research Lab, led by Dr Dan Popa. As a LabVIEW programmer for the lab I was performing and self executing software development in LabVIEW for visuals and control of Microrobots. The Microrobots were fabricated in the Nanofab labs and tested in the lab environment. The system we designed and software portion I wrote allowed to introduce microrobot movement based on various vibration frequency, shape and size of the wafer. The robotic movement and it's rotational patterns were analyzed and logged by the software. My role included, wiring and integrating National Instrument hardware required for this research, including NI Compact RIO controller chassis, IO modules, vision camera module, and linear motion platforms driven based on the vibration. I developed a overall control system and LabView based software to control motion of a microrobots based on various frequencies and also created VRML based robot GUI to interact with the robot shape and apply different parameters changes on the Human Machine Interface (HMI/GUI) screen.

REPRESENTATIVE PROJECTS

Development of Microrobotics Control System using LabVIEW: As a full time research professional, I was assigned to develop a test bench for the ongoing research and development of microrobot's reaction to vibrations. As a Control System Engineer with experience using National Instruments hardware and LabVIEW, I integrated National Instruments Controller hardware, Cameras, Linear Motions Drivers, and a HMI (software developed by me to use it on a Laptop) to monitor and control microrobot's movements. The activities performed by me under this project included camera integration, vision based programming using LabVIEW software on National Instrument's CompactRIO hardware. I was primarily responsible for making changes to the software for optimization and providing feedback to the Microrobot fabricators. We tested Microrobotos of different shape and sizes. I primarily assisted Dr Popa and the mechanical/robotics engineers with the software writing, control system design and camera hardware integration. We also represented USA for IEEE Robotics Conference in Shanghai - China.

WORK EXPERIENCE

NGS Research Lab/UT Arlington
Texas (United States)
Research Assistant
August 2010—June 2011

Verified by
Muhammed Rasid Pac
rasid.pac@gmail.com

Experience Summary
Full-Time
Engineering: 10 months
Experience under licensed engineer: None

TASKS

NGS was a Robotics Research Lab at University of Texas, Arlington, led by Dr Dan Popa. As a LabVIEW programmer for the lab I was performing and self executing software development in LabVIEW for monitoring and control of Microrobots. The Microrobots were fabricated in the Nanofab labs and tested in the NGS lab for its movement on external forced conditions. The system we designed and software portion I wrote allowed to introduce microrobot movement based on various vibration frequency, shape and size of the microrobot. The robotic movement and it's rotational patterns were analyzed and logged by the software. My role included, wiring and integrating National Instrument hardware required for this research, including NI Compact RIO controller chassis, IO modules, vision camera module, and linear motion platforms. I developed an overall control system and LabView based software to control motion of a microrobots based on various frequencies and also created VRML based robot GUI to interact with the robot and apply different parameters changes on the Human Machine Interface (HMI/GUI) screen.

REPRESENTATIVE PROJECTS

Development of Microrobotics Control System using LabVIEW: As a full time research professional, I was assigned to develop a test bench for the ongoing research and development of microrobot's reaction to vibrations at different frequencies. As a Control System Engineer with experience using National Instruments hardware and LabVIEW, I integrated National Instruments Controller hardware, Cameras, Linear Motions Drivers, and a HMI (software developed by me to use Laptop as a interface with the) to monitor and control microrobot's movements. The activities performed by me under this project included camera integration, vision based programming using LabVIEW software on National Instrument's CompactRIO hardware. I was primarily responsible for making changes to the software for optimization and providing feedback to the Microrobot fabricators. We tested Microrobotos of different shape and sizes. I primarily assisted Dr Popa and the mechanical/robotics engineers with the software writing, control system design and camera hardware integration. We also represented USA for IEEE Robotics Conference in Shanghai - China.

WORK EXPERIENCE

Power Engineering
California (United States)
Associate Engineer
August 2011—February 2012

Verified by
Balakumar Swaminathan
balakumar.sbk@gmail.com

Experience Summary
Full-Time
Engineering: 6 months
Experience under licensed engineer: None

TASKS

I was primarily hired as a LabVIEW Programmer/Control System Engineer at the Power Engineering firm in Irvine, CA. My role included preparing control system design documents, including panel elevation drawings, control panel wiring drawings, National Instruments CompactRIO Chassis IO Module wiring drawings, bill of materials, and control narrative. My day-to-day activities will include writing software in LabVIEW for the CompactRIO controller platform, testing the software with the strain gauge-based monitoring system prototype we built in the shop and adjusting for any changes in the software and the prototype.

REPRESENTATIVE PROJECTS

.Strain Guage Monitoring System [Aug 2011 - Feb 2012]

As a LabVIEW Programmer and control system engineer, I primarily wrote a software logic/program for a strain gauge-based strain monitoring system. The strain gauge sensors will interface with the National Instrument's CompactRIO Analog Input modules. I tested the logic in the lab with the help of a fabricated prototype and custom screens built for the testing. After successfully validating and verifying the hardware and software unit, I prepared the overall Operations and Maintenance Manual, including detailed operating instructions, wiring diagrams, specification cut sheets, and a detailed bill of materials.

WORK EXPERIENCE

Wunderlich Malec Engg.
California (United States)
Control System Engineer
March 2012—November 2013

Verified by
Anuj Jain
anujjain83@gmail.com

Experience Summary
Full-Time
Engineering: 1 year, 8 months
Experience under licensed engineer: 1 year, 8 months

TASKS

As a Lead Field Verification Engineer at the Hyperion Wastewater Treatment Plant of Los Angeles, my day-to-day tasks included working closely with Honeywell. I assisted in reverse engineering the existing control system of the treatment plant and prepared engineering design documents for their DCS system design. I led a team of field technicians and engineers by assigning them everyday field activities ranging from control loop wiring verification to redlining for discrepancies and confirmation of control panel termination details. I contributed to control narrative preparation by DCS programmers based on the field instrumentation, control panel wiring, and DCS HMI screens. To document the plant operations, I also interviewed the plant operations and maintenance staff for their knowledge of the plant control system and how processes are monitored and controlled.

REPRESENTATIVE PROJECTS

Hyperion DCS Upgrade - City of Los Angeles WWTP - Bureau of Sanitation [March 2012 - Nov 2013]

The project involved upgrading DCS (Distributed Control System) software and hardware from an obsolete WDPF system to a Honeywell Experion system. I started this project as a first project engineer with the project manager and finally left the project as field manager managing a team of field technicians. My primary role was to assist Honeywell Engineers in finding plans and specifications of the wastewater treatment plant, documenting the existing plant control system, and redlining the drawings when field conditions did not match the as-found drawings. Eventually, as a field staff manager, I was assigned client-facing duties and managed the field staff's safety, daily work order management, and training. I actively engaged with software programmers in deciphering the existing control logic and whether field conditions also validate the logic. My team was responsible for walking the plant, searching instruments, checking its wiring back to the control panel, documenting as-found conditions and updating the drawing as required. I was responsible for doing the quality check of teamwork by reviewing control loop wiring diagrams, redlined piping and instrument drawings, other as-built panel drawings and creating a deliverable package for Honeywell and City review.

WORK EXPERIENCE

AECOM
California (United States)
Instrumentation and Controls Engineer 3
December 2013—November 2022

Verified by
ALLEN RANDALL
allen.randall@aecom.com

Experience Summary
Full-Time
Engineering: 8 years, 11 months
Experience under licensed engineer: 8 years, 11 months

TASKS

I was responsible for creating engineering design documents, including plans, specifications, cost estimates, system acceptance plans, and SCADA Master plans for water and wastewater municipal clients in California. During my nine years as a consulting engineer for 50-plus municipal clients, I designed and executed system integration, master planning, design document preparation and construction phase services. I participated in site surveys, interviewed operations and maintenance staff, and conducted a gap analysis of existing infrastructure that will be replaced. I prepared instrumentation and controls-related engineering plans and specifications for the public bidding process and answered any questions from independent contractors during the bid process. I assisted Cities/Counties/Water Districts in evaluating contractors and contractors' work by doing shop drawing reviews and conducting factory, field and site acceptance tests. My other responsibilities during the construction phase included:
Shop Drawing Review
Answering RFIs.
Reviewing contractor change order requests.
I started as an Engineer 1 in 2013 and left AECOM with Engineer 3 grade.

REPRESENTATIVE PROJECTS

City of Thousand Oaks SCADA Upgrade
[2020-2022]

I was a Lead I&C SCADA Engineer for upgrading the water division's SCADA system hardware including PLCs, HMIs, SCADA servers, network equipment, and obsolete leased line communication with Ethernet microwave radios. I prepared the SCADA master plan to document site assessment findings, gap analysis, technology comparison, high-level cost, and roadmap for implementation of the construction phase. I prepared detailed design documents – P&IDs, communication block diagram, electrical site plans for upgrades at 37 remote sites and new SCADA hardware and software upgrades at the Municipal Service Center.

Oxnard Wastewater Treatment Plant Site Improvements
[2020-2022]

I was a Lead I&C SCADA Engineer for a project involving plantwide hardware and software upgrades to an antiquated SCADA system. I prepared a Tech Memo and detailed design plans and specifications for replacing obsolete SyMax RTU panels with a modern Allen Bradley PLC-based control system. My design included SCADA software migration from Rockwell Automation RS View to Ignition SCADA HMI software by Inductive Automation. I also designed a site security system with CCTV camera installations around the plant perimeter and video surveillance software integration with the SCADA software.

Morena Pump Station | Pure Water San Diego
[2019-2020]

I was the instrumentation engineer responsible for designing the sewage pump station's distributed control (DCS) system-based automation. Project activities included preparing piping and instrument drawings, panel elevations, communication network topology and control strategy. My communication plan design integrated the Morena pump station network into the North City Water Reclamation plant using 16 miles of fiber optic. I coordinated construction phase activities between SCADA vendor Emerson, the Prime Contractor, the System Integrator and the Owner's Engineer.

GWA SCADA Improvements | Guam Water Authority
[2015-2017]

I was the lead I&C SCADA Engineer for an upgrade to the existing SCADA system. My design involved preparing technical memos and detailed designs (plans and specifications) for adding SCADA Pack Remote Terminal Units (RTU) hardware and ABB Tropos IEEE 802.11n Wi-Fi Radios.

Atoka Surge Protection | City of Oklahoma
[2019-2020]
I was a Project I&C Engineer designing surge tank controls for six pumping stations per Oklahoma City standards. My design included an independent PLC control system at each site, which communicated to the pump station PLC using fiber optic and the central SCADA computer via radio. Provided construction service support to the client, including shop drawing review, participating in factory
acceptance test, responding to RFIs, and I&C support during construction meetings.

East County Advance Water Purification | Joint Power Authority
[2021-2022]

I was the Instrumentation Engineer responsible for designing the pump station control system designs and its integration with the AWP facility SCADA network. I developed project plans and specifications for bar screens, odor control systems, pump station control, and surge tank control. Project plans included preparing piping and instrument drawings (P&ID), specifications, instrument list, IO
list, communication network, cost estimate and overall SCADA system for Business and Control networks.

Graham Hill Water Treatment Plant Improvement | City of Santa Cruz
[2021-2022]

I was the Lead I&C SCADA Engineer for a Design-Build project involving process improvement for water treatment and facilities improvement. My I&C scope includes procuring new SCADA hardware infrastructure and assisting the City in relocating the existing antiquated Modicon Quantum RTU drop from the basement to a new network cabinet in the new administration building. I prepared a preliminary design report (PDR) and 90% design level P&IDs for existing and new water treatment. I prepared SCADA network architecture for plantwide PLC-based control panels, vendor skid system, and integration into the new redundant ring fiber optic network.

Online Monitoring System Assessment | Sa Francisco Public Utility Company
[2021-2022]

I was a Lead Instrumentation Engineer for assessing online analyzer infrastructure in a city-wide water
distribution network and its integration into the SCADA system. Prepared a report with an analysis of instrument inventory, identifying redundant and not needed sensors versus adding new sensors, its maintenance program, and suggested best practices on standardization. Conducted interviews with several stakeholders in SFPUC for instrument preferences and manhour calculation on maintenance. Prepared Phase 2 plan to conduct a site inspection at approx.

KUNAL RAITHATHA (15-864-39)

All work experience reviewed by two licensed professionals

WORK EXPERIENCE

Burns and McDonell
California (United States)
Sr Electrical Engineer
December 2022—March 2024

Verified by
Stephanie Sherman
ssherman2@burnsmcd.com

Experience Summary
Full-Time
Engineering: 1 year, 3 months
Experience under licensed engineer: 1 year, 3 months

TASKS

I am a Senior Automation Engineer for the California region supporting Electric Utility and Water and Wastewater Municipal clients. I provide I&C and SCADA system design for Design-Bid-Build and Design-Build projects. My typical project sites include the automation of water treatment plants, pump stations and electric utility substations. My Instrumentation and SCADA activities include site surveys, field assessments, and writing design specifications. I prepare communication system plans, including network architectures, panel elevations, piping, and instrument drawings for procuring new SCADA hardware and software. I also do peer and shop drawing reviews of control system design covering instrument loop drawings, instrument index, instrument specifications, instrument installation details, IO list, points list, control panel bill of materials, logic diagrams, cause and effects diagram, and process control narrative. I extensively attend client meetings, track project progress, and guide assistant engineers in preparing engineering design deliverables.

REPRESENTATIVE PROJECTS

City of Shreveport SCADA Master Planning:
[2022 - Ongoing]
I am a Lead I&C SCADA Engineer supporting the Program Management Office. I am actively involved in upgrading the water division's SCADA system hardware, software, and communication, including a selection of PLCs, HMIs, SCADA servers, and network equipment. I am also responsible for reviewing plans and specifications developed by other consulting engineers and ensuring they adhere to the City standards. I review and provide comments before approval of any SCADA system-related cost proposal by the City' System Integrator.

PG&E ADMS Program Management:
[2023 - Ongoing]
I am a Technical Advisor to the Program Management Office team and am primarily responsible for defining the overall technical scope of the project. I assist the management team and various stakeholders with simplifying the technical implementation and the overall cutover process from old software to new. I actively collaborate with the software vendor, software programmers, PG&E technicians and operation staff to improve the step-by-step procedure of integrating 20,000 distribution system monitoring feeder devices.

Xcel Energy:
[2023 - Ongoing]
I am one of the Lead SCADA Engineers responsible for executing multiple projects under this Xcel Energy Portfolio of different programs. My role includes:
Defining the project scope with the Communication Sponsor
Participating in field visits
Preparing construction cost estimates
Leading a team of assistant engineers in designing the SCADA system per Xcel Energy standards
I oversee execution and quality check project drawings for the communication scope. My typical deliverables for any Substation project include an IO List/Points List, Communication One Line, Relay Settings, RTU Rack Elevation Drawings, and Control Design of Communication Drawings.

7. Approval of March 14, 2024, Board Meeting Minutes

NEVADA STATE BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS
Minutes of the Regular Board Meeting
Held at 1755 E Plumb Lane Reno, NV 89502 on Thursday, March 14, 2024, at 11:00am

Board members participating were Chairman Angelo Spata, PE; Vice Chair Brent Wright, PE/SE; Thomas Matter, public member; Karen Purcell, PE; Michael Kidd, PLS; Robert Fyda, PE; Greg DeSart, PE; and Jay Dixon, PE; Matthew Gingerich, PLS.

Also participating were Patty Mamola, Board Staff; Chris MacKenzie, Board Legal Counsel; Murray Blaney, Board Staff; Ed McGuire, Professional Standards, Jasmine Bailey, Licensing Specialist; and Derek Vogel, Communications.

1. Meeting conducted by Chair Angelo Spata, call to order and roll call of board members to determine presence of quorum—board members Brent Wright, Michael Kidd, Karen Purcell, Thomas Matter, Angelo Spata, Matt Gingerich, Robert Fyda, Greg DeSart, Jay Dixon.

Mr Spata called the meeting to order, and a quorum was determined.

2. Pledge of Allegiance

3. Public comment.

4 Introductions

All board members introduced themselves.

Mr Spata read the board's purpose and mission.

The purpose of the board as stated in Nevada Revised Statute 625.005 is to safeguard life, health and property and to promote the public welfare by providing for the licensure of qualified and competent professional engineers and professional land surveyors and our mission is founded on the board's purpose, the board's mission is to uphold the value of professional engineering and land surveying licensure by assessing minimum competency for initial entry into the profession and to insure on going standard of professionalism by facilitating compliance with laws regulations and code of practice and to provide understanding and progression in licensure by openly engaging with all stake holders.

4. Consideration of initial licensure applicant requests to waive certain requirements of Nevada Revised Statutes and Nevada Administrative Code Chapter 625.

Mr Fyda recommended approval of the request to waive NRS 625.183 (4)(b) made by Daniel Addington applying for chemical engineering licensure.

24 -15 A motion was made by Mr Fyda, seconded by Ms Purcell to approve the waiver request. The motion passed unanimously.

5. <u>Board approval of non-appearance applications for initial licensure. Refer to Addendum A for list of applicants.</u>

The board reviewed fifteen applications in the board packet for initial licensure and there were questions and brief discussions about the experience of three applicants.

24-16 The questions were answered, and a motion was made by Mr Gingerich, seconded by Mr Kidd to approve the applications for initial licensure contained in the board packet with recommendations noted. The motion passed unanimously.

The board reviewed two (2) additional applications in a second packet, and there were no comments or questions.

24-17 A motion was made by Ms Purcell, seconded by Mr Fyda to approve the applications for initial licensure contained in the board packet with recommendations noted. The motion passed unanimously.

6.<u>Discussion and possible action on approval of January 24, 2024, board meeting minutes.</u>

24-18 A motion was made by Mr Desart, seconded by Mr Kidd to approve the January 24, 2024, board meeting minutes. The motion passed unanimously.

7.<u>Discussion and possible action on approval of February 8, 2023, interim board meeting minutes.</u>

24-19 A motion was made by Mr Fyda, seconded by Ms Purcell to approve the February 8, 2024, board meeting minutes. The motion passed unanimously.

8.<u>Discussion and possible action on financial statements:</u>

a. <u>January 2024</u>

b. <u>February 2024</u>

Mr Blaney presented a brief summary of the January and February financial statements as presented in the board packet.

24-20 A motion was made by Mr Kidd, seconded by Ms Purcell, to approve the January and February 2024 financial statements. The motion passed unanimously.

9.Discussion and possible action on compliance reports by Compliance Officer.

a. Compliance officer report on complaints being investigated.

Mr Blaney reported on the status of eight (8) open compliance case files, of which four (4) were new. There were no questions from board members.

b. Consideration of probation reports:

Dooley Riva, PE #18231
Jason Caster, PLS #19338
Lazell Preator, PE #14982
Robert Mercado, PLS #10352
Buckley Blew, PLS #24520
Armando Monarrez, PE #19652
Mark Johnson, PE #19830
Andrew Hammond, PE/PLS #21191

Mr Blaney reported on the status of the licensees currently on probation. He noted that Mr Mercado continues to be delinquent in submitting his probation reports, and Mr Preator's reports from his original discipline are still outstanding.

Mr MacKenzie provided an explanation of options available to remedy Mr Preator's case.

10.Discussion on Board Counsel Report.

Mr MacKenzie had nothing new to report and there were no questions from the board.

11.Discussion and possible action on administrative report by staff. (For possible action)

a. Approved licensees report

Mr Blaney gave a brief summary of the licensing report and noted that February saw one of the largest number of comity applications at 140.

b. Action items related to 2021-2025 Strategic Plan

There were no comments on the strategic plan.

c. Items related to National Council of Examiners for Engineering & Surveying (NCEES)

Ms Mamola gave a brief update on the NCEES Western Zone Meeting in Bozeman, Montana, May 16-18. She mentioned the candidates she included in the board packet, and a brief discussion about voting for the candidates followed. It was agreed that the board would wait until they were in attendance at the Western Zone meeting to determine how the board will vote.

d. Presentations from candidates for NCEES Western Zone officer elections.

Aaron Blaisdell, PLS, board member from Washington state, gave a summary of his background and qualifications. Mr Blaisdell highlighted his experience on the NCEES exam development committee for the surveyor PLSS module and Western Zone leadership development committee. He also mentioned the importance of student involvement, made mention of Nevada's strengths related to NCEES, and he asked for the board's vote for the NCEES Western Zone Vice President position.

Elizabeth Johnston, board member from Alaska, NCEES assistant zone vice president, gave a summary of her background and qualifications. Ms Johnston emphasized the importance of the support from professional societies to support the NCEES exams. She is impressed with some of Nevada's initiatives for comity licensure. She concluded by thanking the board for considering her for NCEES president-elect.

12.Discussion and possible action on board committee reports. (For possible action)

a. Administrative Procedures Oversight Committee, Chair Brent Wright

a.i. Consider selection of Albertson Consulting/Big Picture Software for licensing database platform development and implementation of $60,000 and four year hosting, license, update, maintenance cost of $103,600 (average monthly cost $2,159).

Mr Wright provided a brief summary of the APOC committee's recommendation that the board approve staff to pursue a contract with Albertson Consulting/Big Picture Software for a new online licensing and license renewal software system, including hosting and maintenance. He said the recommendation also includes a 24-month maintenance contract extension with InLumon for the current platform. (ACTION Item)

24-21 Mr Wright motioned to approve the recommendation, Mr Spata seconded, and the motion passed unanimously.

Mr Wright continued, by summarizing the APOC committee's process for filling the Executive Director vacancy. He said APOC considered 11 applicants, shortlisted five, and three were scheduled to be interviewed today.

b. <u>Legislative Committee, Chair Greg DeSart</u>

<u>b.i. Consider possible bill draft request for 2025 legislative session—NRS 625.183, 625.193, 625.270, and 625.280—and possible future regulation change—NAC 625.310.</u>

Mr DeSart reported that the committee had met on February 29, 2024, and considered language for possible bill draft requests and regulation revisions as drafted by the LCB, R006-34.

Ms Mamola said the board packet was published before the LegComm meeting, so the materials relating to the February 29 Legislative Committee meeting were issued in the board supplemental materials.

NRS 625.183

Mr DeSart said the proposed change related to waivers regularly considered by the board, and removes the requirement of the two of the four years' experience to be under the supervision of a PE who is licensed in the discipline in which the applicant is applying for licensure.

Mr Matter said he understood what the revision was trying to accomplish, but had concerns with removing the same discipline requirement. He added the wavier considered today – which was not granted – illustrated those concerns.

Mr DeSart said today was unique, but in his recollection outside of today it has been a long time since a request has been denied. He asked, if the provision was removed from statute, would the board have the ability to deny a license in the situation similar to today's applicant whose waiver request was denied.

Ms Mamola replied no, the board would not have the ability to deny if the statute were changed as proposed.

Mr Matter said I believe we are better off having them submit a waiver request to explain their situation and for us to consider those circumstances.

Ms Purcell said she that it is better to leave the language as-is and if there is a waiver request to consider at each meeting, so be it. She added she'd rather have the ability to make sure that they're getting the proper supervision and experience under a licensed engineer in their same discipline.

Mr Kidd and Mr Wright said they agreed with Mr Matter and Ms Purcell.

24-22 Mr Matter motioned to leave the language in NRS 625.183 related to supervision under the same discipline as currently written and not accept the proposed changes. Ms Purcell seconded, and the motion passed unanimously.

NRS 625.193

Mr DeSart said the proposed revisions mainly clean up language that is no longer applicable, but of note is the revision that reduces the experience requirement for the waiver of the fundamentals of engineering (FE) exam from fifteen (15) years to eight (8) years.

Ms Mamola added that the clean up text revisions reflect that the examination process is now a National Council of Examiners for Engineering and Surveying (NCEES) function.

Mr Matter asked if the experience waiver timeframe was something set by NCEES or the board.

Ms Mamola said it is determined by the board, and added we believe the timeframe probably came from back in the day when we didn't require an engineering degree. At that time, you needed ten years of experience, and I think they just arbitrarily then set it at fifteen. If you didn't pass the FE and you had fifteen years' experience, then the board could waive it – and now the proposal is to reduce to the time from fifteen years to eight years.

Mr DeSart added the timeframe proposed of eight is years is also highly arbitrary, but the fifteen years seems a little excessive.

Ms Purcell asked about the discussion had at the LegComm meeting, how was eight years settled upon.

Mr DeSart said the discussion and the decision was somewhat arbitrary, in that fifteen years appeared excessive and eight years, where someone is well into their career with relevant experience and has passed the PE, seemed right. He added it could be any number, but four years felt low, fifteen is high, and eight sits in the middle.

Mr Gingerich said ideally, we want them to take the exam, and there may be a concern if the bar is pushed down too low or that number is too low, then maybe it opens up gaming of the system.

Mr DeSart said he didn't think the board had seen someone who met the experience years and applied for a waiver ever being denied. But that doesn't mean that there couldn't be a reason for it to be rejected. He said he thought the intent here is for applicants to have eight years of relevant experience and you pass the PE – an important component, in that you've demonstrated the minimal competence that you need to practice in your area of expertise. Mr DeSart added the FE is more of a generic test where you're going to be tested on a broader range of topics, and the further you are from graduating college you may struggle to pass the FE exam. Most practicing engineers would have a difficult time passing the FE exam.

Mr Spata asked what originated the evaluation of FE waiver timeframe.

Mr DeSart said he believed it came from up in a board meeting, evaluating waiver requirements to make sure they are not obsolete.

Ms Mamola added the evaluation is to make sure it is not an excessive and an unnecessary barrier to licensure. As written, the statute has been in place since before we started requiring an engineering degree, so it was time to re-evaluate. She added it is up to the board to decide what it thinks is appropriate.

Mr Kidd said he personally likes the eight years. If the applicant wants to expedite the timeframe, take and pass the FE.

Mr Fyda said he looked at the four years active experience requirement; eight years is double that requirement without the FE. That is how he justified the number. He added that applicants would be trading experience for the FE essentially.

Mr Wright said he agreed with what's been said. Everyone has a different way of justifying a longer period, but he thought it made sense.

Mr MacKenzie noted in NRS 625.183 the terminology relating to experience was "active experience" but in NRS 625.193 it just reads "experience". He recommended that the later be edited to include the word "active". (ACTION Item)

24-23 Mr Kidd motioned to approve the proposed revisions to NRS 625.193 with the additional edit identified by Mr MacKenzie. Ms Purcell seconded, and the motion passed unanimously.

NRS 625.270

Mr DeSart said this relates to the qualifications of applications for a professional land surveyor, and the proposed changes make this consistent with the engineering statutes.

4-24 Mr Gingerich motioned to approve the proposed revisions NRS 625.270 as presented. Mr Kidd seconded, and the motion passed unanimously.

NRS 625.280

Mr DeSart said this is very similar to NRS 625.193 previously discussed, as it's also making the language more compatible with what we have for engineers, and it is related to the fundamentals of land surveying exam, changing it from fifteen years to eight years. Mr DeSart added, based on Mr MacKenzie's previous comment, we'll need to add the word "active" in relation to experience. (ACTION Item)

24-25 Mr Kidd motioned to approve the proposed revisions NRS 625.280 with the additional edit identified by Mr MacKenzie. Mr Matter seconded, and the motion passed unanimously.

Mr DeSart said this item is just a report from the LegComm meeting previewing a possible future revision to NAC 625.310. He said the future change is in preparation for the release of the NCEES PS exam module revisions due for release in 2027.

Ms Mamola noted that the regulation does not need approval from the board today, that it is a preview of what would likely need to happen when official notice is given by NCEES about the exam module changes. She added that they are required to give two years notice – meaning in 2025 for a release in 2027.

Mr Spata noted an edit – adding a semicolon to 3. (b) for consistency. (ACTION Item)

13.c. Professional Association Liaison Committee, Chair Matt Gingerich.

Mr Gingerich said the committee met yesterday and the main item of note was a discussion relating to changes to NRS Chapter 327 as result of the NOAA datum update. He added that the consideration for who will carry the BDR (NDOT, NALS, or the board) will likely move to LegComm for a discussion.

Ms Mamola noted that any BDR on the NRS 327 would be separate from those discussed earlier.

13.d. Public Outreach Committee, Chair Karen Purcell

Ms Purcell said the committee met on February 21 and reviewed the communications efforts over the past six months, and what was planned through to the end of the financial year. She added a communications/public outreach budget was presented along with a social media calendar for the committee's consideration. Ms Purcell said the committee was agreeable to both items as presented by staff.

13.e. PLS Standards of Practice Subcommittee of the Legislative Committee, Chair Matt Gingerich

Mr Gingerich reported the committee had not met since the last board meeting.

14. Discussion and possible action on updating Nevada Revised Statutes and Nevada Administrative Code chapter 625.

Mr Spata said there were no additional items to be covered under this agenda item. Mr DeSart addressed possible statute changes during his committee report.

15. Discussion and possible action on candidates for filling Executive Director position.

Mr Spata said this agenda item relates to interviewing candidates for Executive Director. He outlined how the interview would be conducted with board members asking a series of pre-determined questions, then board members could pose any follow-up questions, then there would be an opportunity for the candidates to ask questions of the board. Mr Spata added, following the interviews, the board would deliberate and consider any motions related to selecting an Executive Director.

1:00 PM
a. Interview Adam Higginbotham.

2:00 PM
b. Interview Mark Fakler.

3:00 PM
c. Interview Sam Palmer

Mr Spata said the candidate scheduled for 3PM withdrew their application.

At the conclusion of the interviews, in summary, Mr Spata said the board had two strong candidates with contrasting experience to discuss and for deliberate. He asked board members to share their thoughts on the strengths and weaknesses of each candidate. Mr Spata also asked for staff input.

The consensus was that both were worthy candidates for the position, and if during negotiations on employment terms, a candidate was to withdraw, the other would be offered the position. Mr Spata asked Ms Purcell, following candidate selection, if she would be willing to negotiate terms on behalf of the board. Ms Purcell said she would.

Following open discussion by the board, Mr Spata asked if there was a motion to be put forward.

24-26 Mr Kidd motioned that Mr Fakler be offered the Executive Director position, and if he should not accept or withdraw, the position then be offered to Mr Higginbotham. Mr Gingerich seconded the motion. The motion passed unanimously.

16. Discussion and possible action on information provided by government liaison representative from McDonald Carano related to Nevada's legislative and regulatory matters and any associated board matters.

Ms Wilson reported that activity relating to primary elections was ramping up. Candidate filing deadline is tomorrow, March 15th. From there, the primary is June 11th, and so we will have more information on candidates and who's running for which office by next month. She added their office has met with almost every new candidate running for political office as well as the current legislators that are currently sitting as incumbents. Ms Wilson said, relating to BDRs, they will start working with us to find a sponsor for our BDR for the upcoming legislative session, and whenever we do sit down with legislators, we will mention the regulations that were just adopted this morning by the board and any additional items that are going to be coming up in the next few months.

17. Discussion and possible action on status of Board and staff assignments.

Mr DeSart said that he, Mr Kidd, Ms Purcell, along with board staff Ed McGuire, were going to be presenting at the upcoming APWA Spring Conference in mid-April. He added if any other board members were planning on attending, they are welcome to join on the stage for the presentation and any follow-on panel discussion.

18. Discussion and possible action on meeting dates.

Ms Mamola said of note, March 13, 2025, as a new date for the Reno board meeting, and the NCEES annual meeting will be at Lake Las Vegas in 2026 –in Henderson, Nevada.

Mr Spata said the July board meeting was to be held in Tonopah on July 18, and added that there was some consideration of a mine tour the day before the board meeting at Round Mountain, and asked if a board member could explore options.

Mr DeSart and Mr Dixon volunteered to explore options.

19. Discussion and identification of topics for future meetings including possible proposed amendments to the Nevada Professional Engineers and Land Surveyors Law, Nevada Revised Statutes and Nevada Administrative Code Chapter 625.

Mr Spata said in the past, the board would invite guests to attend our meetings. He asked if this was something that we did only if people asked or was it something we should do a better job of reaching out and identifying possible guests.

Ms Mamola said Covid put a damper on guest invites. But, yes, we can start making invitations again.

Mr Spata said maybe as part of the outreach committee, they could discuss to get more active participation of our licensees. He said since we are going to have a board meeting in Tonopah, it would be good to reach out to licensees in the Tonopah area—mining or land surveyors.

Ms Mamola agreed and said staff would work on guests for the upcoming Las Vegas and Tonopah board meetings. (ACTION Item)

20. Public comment.

There was no public comment in-person, via email, or virtually.

21. Adjournment

Mr Spata thanked those present for their participation and adjourned the meeting at 2:58pm.

Respectfully, Murray Blaney
Board Staff

Addendum A - March Initials

LNAME	FNAME	ABREV	COMMENTS
Bartlett	Owen	CE	Board approved; 3/14/24
Baumgardner	Ezekiel	CE	Board approved; 3/14/24
Elliott	Caroline	CE	Board approved; 3/14/24
Ghasemi	Parnian	CE	Board approved; 3/14/24
Marshall	Alanna	CE	Board approved; 3/14/24
Tohmeh	Ameen	CE	Board approved; 3/14/24
Umanzor	Bany	CE	Board approved; 3/14/24

LNAME	FNAME	ABREV	COMMENTS
Uy	Michael Bailey	CE	Board approved; 3/14/24
Webber	Douglas	CE	Board approved; 3/14/24
Wingate	Jonathan	CE	Board approved; 3/14/24
Addington	Daniel	CHE	Board approved; 3/14/24;Waiver Request: NRS 625.183, item 4, part b.
Au	Gavin	EE	Board approved; 3/14/24
Khairnar	Sandip	FPE	Board approved; 3/14/24
Kimball	Christopher	FPE	Expand FPE experience and confirm FPE Supervision, send to Karen Purcell Approved by KP 3/20/24.

LNAME	FNAME	ABREV	COMMENTS
Sosa	Rothman	FPE	Board approved; 3/14/24
Marquez Rivera	Alfredo	ME	Board approved; 3/14/24
Phan	Catherine	ME	Board approved; 3/14/24

8. Approval of April 11, 2024, Interim Board Meeting Minutes

NEVADA STATE BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS
Minutes of the Interim Board Meeting
Held virtually via Zoom, Thursday, April 11, 2024, at 8:45AM

Board members participating were Chair Angelo Spata, PE; Vice-Chair Brent Wright, PE/SE; Thomas Matter, Public Member; Michael Kidd, PLS; Robert Fyda, PE; Karen Purcell, PE; Jay Dixon, PE; Greg DeSart, PE; and Matthew Gingerich, PLS. Also participating were Murray Blaney, Operations/Compliance; Chris MacKenzie, Board Legal Counsel; and Jasmine Bailey, Licensing.

1. Meeting conducted by Chair Angelo Spata, call to order and roll call of board members to determine presence of quorum—board members Brent Wright, Michael Kidd, Thomas Matter, Karen Purcell, Matt Gingerich, Robert Fyda, Greg DeSart, Jay Dixon.

Mr Spata called the meeting to order, and a quorum was determined.

2. Pledge of Allegiance.

3. Public Comment.

There was no public comment in-person, virtually or via email.

4. Consideration of initial licensure applicant requests to waive certain requirements of Nevada Revised Statutes and Nevada Administrative Code Chapter 625.

There were none to be considered.

5. Board approval of non-appearance applications for initial licensure. Refer to Addendum A for list of applicants.

The board reviewed eighteen applications for initial licensure in the board packet.

24-27 A motion was made by Mr Fyda, seconded by Mr Gingerich to approve the applications for initial licensure contained in the board packet. The motion passed unanimously.

6. Consideration of board appointment of an interim executive director.

Mr Spata said this agenda item is listed in error due to the copy and paste of a previous agenda. He apologized for any confusion caused.

7. Public Comment.

There was no public comment in-person, virtually or via email.

8. Adjournment.

Mr Spata thanked the meeting attendees for their participation and adjourned the meeting at 8:51am.

Respectfully, Murray Blaney
Operations/Compliance

Addendum A - April Initials

LNAME	FNAME	ABREV	COMMENTS
Al Jabari	Abdullah	CE	Board approved; 4/11/24
Gardner	Ryan	CE	Board approved; 4/11/24
Jorat	Mahdi	CE	Board approved; 4/11/24
McCreary	Christopher	CE	Board approved; 4/11/24
O'Hair	Brett	CE	Board approved; 4/11/24
Orozco Jr	Jorge	CE	Board approved; 4/11/24
Porter	Thomas	CE	Board approved; 4/11/24
Sapkota	Sameeksha	CE	Board approved; 4/11/24

LNAME	FNAME	ABREV	COMMENTS
Weicker IV	Theodore	CE	Board approved; 4/11/24
Wood	Patrick	CE	Board approved; 4/11/24
Mohta	Mohit	EE	Board approved; 4/11/24
Natsuhara	Brent	EE	Board approved; 4/11/24
Davis	Logan	ME	Board approved; 4/11/24
Johnson	Justina	ME	Board approved; 4/11/24
Meyer	Kaleipuakea	ME	Board approved; 4/11/24
Nguy	Nam	ME	Board approved; 4/11/24

LNAME	FNAME	ABREV	COMMENTS
Shields	Wyatt	ME	Board approved; 4/11/24
Bonsembiante	Tomas	SE	Board approved; 4/11/24

9. Financial Statements

Nevada State Board of Professional Engineers and Land Surveyors

Profit & Loss Budget - YTD Budget

July 2023 - March 2024

	TOTAL			
	ACTUAL	BUDGET	OVER BUDGET	% OF BUDGET
Income				
4000 REVENUE	847,611.04	690,025.01	157,586.03	122.84 %
Total Income	**$847,611.04**	**$690,025.01**	**$157,586.03**	**122.84 %**
GROSS PROFIT	**$847,611.04**	**$690,025.01**	**$157,586.03**	**122.84 %**
Expenses				
5100 PAYROLL EXPENSES	447,058.47	519,525.00	-72,466.53	86.05 %
5110 PAYROLL TAXES	29,835.08	46,012.41	-16,177.33	64.84 %
6001 OPERATING EXPENSES	389,997.77	452,048.40	-62,050.63	86.27 %
Total Expenses	**$866,891.32**	**$1,017,585.81**	**$ -150,694.49**	**85.19 %**
NET OPERATING INCOME	**$ -19,280.28**	**$ -327,560.80**	**$308,280.52**	**5.89 %**
NET INCOME	**$ -19,280.28**	**$ -327,560.80**	**$308,280.52**	**5.89 %**

Nevada State Board of Professional Engineers and Land Surveyors

Profit and Loss YTD Comparison

March 2024

	TOTAL	
	MAR 2024	JUL 2023 - MAR 2024 (YTD)
Income		
4000 REVENUE		
4201 Application Fees		
4202 PE Comity Application	15,375.00	112,988.36
4203 PLS Comity Application	375.00	3,375.00
4204 PE Initial License Application	400.00	4,275.00
4205 PLS Initial License Application	25.00	125.00
4206 PE Reinstatement Application	1,800.00	14,600.00
4207 PLS Reinstatement Application		600.00
4208 EI Certification Application	50.00	7,340.00
Total 4201 Application Fees	**18,025.00**	**143,303.36**
4250 Renewals & Exam Fees		
4251 PE/PLS Renewals	37,700.00	451,845.00
4252 Renewal Late Fees	400.00	14,200.00
4253 PE License Fees	9,600.00	72,475.00
4254 PLS License Fees	75.00	75.00
Total 4250 Renewals & Exam Fees	**47,775.00**	**538,595.00**
4300 Other Revenue		
4301 Replacement Certificate/Pocket	120.00	430.00
4303 Interest Income	7,049.16	66,951.18
4304 Discipline Pd to NV Gen Fund	1,700.00	14,256.50
4307 Firm Registration	6,850.00	83,100.00
4311 Waiver/Document Fees	50.00	1,000.00
Total 4300 Other Revenue	**15,769.16**	**165,737.68**
Total 4000 REVENUE	**81,569.16**	**847,636.04**
Total Income	**$81,569.16**	**$847,636.04**
GROSS PROFIT	**$81,569.16**	**$847,636.04**
Expenses		
5100 PAYROLL EXPENSES		
5102 Employee Health Insurance	4,765.93	43,427.12
5103 Employee IRA/SEP		20,157.02
5105 Payroll Service Fees	165.62	1,663.64
5107 Salaries	40,966.82	378,360.69
5108 Board Salaries		3,450.00
Total 5100 PAYROLL EXPENSES	**45,898.37**	**447,058.47**

Nevada State Board of Professional Engineers and Land Surveyors

Profit and Loss YTD Comparison

March 2024

	TOTAL	
	MAR 2024	JUL 2023 - MAR 2024 (YTD)
5110 PAYROLL TAXES		
5111 FICA	2,539.97	22,576.49
5113 Medicare	594.02	5,486.30
5114 Modified Business Tax		684.80
5116 SUINV		13.56
5117 SUI	-112.25	1,073.93
Total 5110 PAYROLL TAXES	**3,021.74**	**29,835.08**
6001 OPERATING EXPENSES		
6006 Office Supplies	2,653.68	12,312.20
6007 Equipment/Furniture		109.95
6010 Equipment Purchases		3,372.36
6011 Equipment Leasing	275.60	2,506.89
6012 Software		
6012.1 Deferred Exp-Software Upgrades		8,000.00
6012.5 Software	1,264.77	5,503.73
Total 6012 Software	**1,264.77**	**13,503.73**
6015 Website Hosting	1,740.00	16,740.00
Total 6007 Equipment/Furniture	**3,280.37**	**36,232.93**
6101 Insurance		
6102 Workers Comp		1,297.81
6103 General Liability		1,629.74
Total 6101 Insurance		**2,927.55**
6201 Postage		
6202 Postage		7,697.31
6202.5 E-Postage		2,990.00
6205 Postage Renewals	1,500.00	2,794.00
Total 6201 Postage	**1,500.00**	**13,481.31**
6301 Board Meetings		
6302 Travel - Out of State		611.61
6303 Travel - In State	487.95	15,296.22
6304 Board Meeting Expenses		959.05
Total 6301 Board Meetings	**487.95**	**16,866.88**

Nevada State Board of Professional Engineers and Land Surveyors

Profit and Loss YTD Comparison

March 2024

	TOTAL	
	MAR 2024	JUL 2023 - MAR 2024 (YTD)
6501 Professional Services		
6502 Legal		
6503 Board Meetings	1,007.50	46,277.97
6504 Regulations/Legislation		487.50
6504.5 Regulations/Legislation		715.00
Total 6504 Regulations/Legislation		**1,202.50**
6505 Discipline	0.04	11,421.29
Total 6502 Legal	**1,007.54**	**58,901.76**
6508 Accounting Fees	850.00	23,576.25
6509 Government Liaison Services		
6509.1 Def Exp-Government Liaison		4,000.00
6509.5 Government Liaison	2,000.00	14,000.00
Total 6509 Government Liaison Services	**2,000.00**	**18,000.00**
6510 Database/Website Design		
6510.1 Deferred Exp-Website Update		1,431.66
6510.2 Deferred Exp-Database Update	6,160.00	28,240.00
6510.5 Database/Website Design		1,056.70
Total 6510 Database/Website Design	**6,160.00**	**30,728.36**
6511 Public Outreach	4,419.99	14,675.56
6514 Contract Labor		100.00
6514.1 Def Exp-Contract Labor	1,128.24	4,078.71
6514.5 Contract Labor		1,742.20
Total 6514 Contract Labor	**1,128.24**	**5,920.91**
6515 IT Support	-737.66	16,138.70
Total 6501 Professional Services	**14,828.11**	**167,941.54**
6601 Program Services		
6604 NCEES		
6606 Registration		970.00
6607 Travel		10,736.88
Total 6604 NCEES		**11,706.88**
6615 Bank Fees	51.00	246.80
6616 Merchant Services Fees	4,926.81	43,167.29
6630 LAS Office Support		1,403.92
6640 Workshops		
6640.5 Workshops		333.02
Total 6640 Workshops		**333.02**
Total 6601 Program Services	**4,977.81**	**56,857.91**

Nevada State Board of Professional Engineers and Land Surveyors

Profit and Loss YTD Comparison

March 2024

	TOTAL	
	MAR 2024	JUL 2023 - MAR 2024 (YTD)
6700 Other		
6704 State Administrative Fees		
6705 Attorney General		628.16
6709 Email - EITS	208.50	834.00
6710 Leg. Counsel Bureau		900.00
Total 6704 State Administrative Fees	**208.50**	**2,362.16**
Total 6700 Other	**208.50**	**2,362.16**
6801 Training & Conferences		
6802 Travel - Out of State		1,854.37
6804 Registration		3,714.52
Total 6801 Training & Conferences		**5,568.89**
6900 Other Expenses		
6901 Taxes and Licenses		474.20
Total 6900 Other Expenses		**474.20**
Non State Owned Office Bldg.		
6002 Rent		
6002.1 Sub-Lease		-750.00
6002.2 Rent	7,674.17	67,737.22
Total 6002 Rent	**7,674.17**	**66,987.22**
6004 Utilities	87.91	949.49
6005 Telephone/Internet	1,279.21	7,035.49
Total Non State Owned Office Bldg.	**9,041.29**	**74,972.20**
Total 6001 OPERATING EXPENSES	**36,977.71**	**389,997.77**
Total Expenses	**$85,897.82**	**$866,891.32**
NET OPERATING INCOME	**$ -4,328.66**	**$ -19,255.28**
NET INCOME	**$ -4,328.66**	**$ -19,255.28**

Nevada Board of Professional Engineers Land Surveyors

Balance Sheet

As of March 31, 2024

	TOTAL
ASSETS	
Current Assets	
Bank Accounts	
1001 ASSETS	2,587,582.64
Total Bank Accounts	**$2,587,582.64**
Other Current Assets	
1305 Prepaid Expense	15,757.37
1310 Prepaid Lease/Deposit	5,005.00
Total Other Current Assets	**$20,762.37**
Total Current Assets	**$2,608,345.01**
TOTAL ASSETS	**$2,608,345.01**
LIABILITIES AND EQUITY	
Liabilities	
Current Liabilities	
Accounts Payable	
2000 Accounts Payable	8,511.78
Total Accounts Payable	**$8,511.78**
Other Current Liabilities	
2001 Payroll Liabilities	34,177.25
4100 Deferred Revenue	805,573.69
Total Other Current Liabilities	**$839,750.94**
Total Current Liabilities	**$848,262.72**
Total Liabilities	**$848,262.72**
Equity	
3510 Website Phase 2	30,000.00
3520 Data System Upgrade	175,000.00
3530 Electronic/Digital Pathway	175,000.00
3900 Retained Earnings	1,399,337.57
Net Income	-19,255.28
Total Equity	**$1,760,082.29**
TOTAL LIABILITIES AND EQUITY	**$2,608,345.01**

Nevada Board of Professional Engineers Land Surveyors

Balance Sheet Detail

As of March 31, 2024

	TOTAL
ASSETS	
Current Assets	
Bank Accounts	
1001 ASSETS	0.00
1051 First Indep. Bank - Operating	420,787.74
1052 First Indep. Bank - Payroll	89,223.64
1053 First Indep. Bank - Petty Cash	2,527.94
1054 First Indep. Bank - MMA	410,424.43
1055 First Indep. Bank - 24mo CD	562,657.07
1056 First Indep. Bank - 18mo CD	280,537.29
1057 First Indep. Bank - 12mo CD	274,605.74
1058 First Indep. Bank - 24mo FlexCD	546,818.79
Total 1001 ASSETS	**2,587,582.64**
Total Bank Accounts	**$2,587,582.64**
Other Current Assets	
1305 Prepaid Expense	15,757.37
1310 Prepaid Lease/Deposit	5,005.00
Total Other Current Assets	**$20,762.37**
Total Current Assets	**$2,608,345.01**
TOTAL ASSETS	**$2,608,345.01**
LIABILITIES AND EQUITY	
Liabilities	
Current Liabilities	
Accounts Payable	
2000 Accounts Payable	8,511.78
Total Accounts Payable	**$8,511.78**
Other Current Liabilities	
2001 Payroll Liabilities	0.00
2002 Accrued Benefits	34,177.25
Total 2001 Payroll Liabilities	**34,177.25**
4100 Deferred Revenue	805,573.69
Total Other Current Liabilities	**$839,750.94**
Total Current Liabilities	**$848,262.72**
Total Liabilities	**$848,262.72**
Equity	
3510 Website Phase 2	30,000.00
3520 Data System Upgrade	175,000.00
3530 Electronic/Digital Pathway	175,000.00
3900 Retained Earnings	1,399,337.57
Net Income	-19,255.28
Total Equity	**$1,760,082.29**
TOTAL LIABILITIES AND EQUITY	**$2,608,345.01**

10. Compliance Officer Report

10.a. Compliance Report

10. a. Compliance Investigations

Currently there are eight (8) cases to report on:

1. 20220007 – Gross negligence, incompetency, or misconduct in engineering.
   Investigation complete.
2. 20230015 – Gross negligence, incompetency, or misconduct in land surveying.
   Under investigation.
3. 20230016 – Gross negligence, incompetency, or misconduct in land surveying.
   Investigation complete.
4. 20230018 – Failure to act as faithful agent to client.
   Under investigation.
5. 20230019 – Failure to comply with an order of the Board.
   Investigation complete.
6. 20240003 – Failure to act as faithful agent to employer.
   Investigation complete.
7. 20240004 – Gross negligence, incompetency, or misconduct in engineering.
   Investigation complete.
8. 20230005 – Practicing on a suspended license.
   Investigation complete.

1. 20220007 – Gross negligence, incompetency, or misconduct in engineering.

Summary:
Complaint filed by a public entity against a civil engineer alleging the stamping and signing of false and manipulated information, and the submittal of testing information for which the engineer was not in responsible charge.
Status:
Case under board counsel review.

2. 20230015 – Gross negligence, incompetency, or misconduct in land surveying.

Summary:
Complaint filed against a PE/PLS and a PLS from the same firm. The allegations relate to a boundary line adjustment performed on two neighboring properties and the resulting impact on a third party's irrigation easement.
Status:
Under investigation.

3. 20230016 – Gross negligence, incompetency, or misconduct in land surveying.

Summary:
Relates to a PLS performing an ALTA survey. A trailing surveyor was unable to re-trace the information in the survey and a complaint was filed with the board.
Status:
Case under board liaison review.

4. 20230018 – Failure to act as faithful agent to client.

Summary:
Complaint filed against a CE providing inspection and testing services on a project in Las Vegas. It is alleged the engineer failed to provide the final reports in a timely manner after being paid in full for services rendered.
Status:
Under investigation.

5. 20230019 – Failure to comply with an order of the Board.

Summary:
An engineer was subject to an order of the board suspending their license. Post the date of suspension it appears that the licensee has been practicing on the suspended license.
Status:
Case under board counsel review.

6. 20240003 – Failure to act as faithful agent to employer.

Summary:
A complaint filed by an employer against a mechanical engineer who while working remotely is alleged to have been providing professional services for another engineering firm.
Status:
Under board liaison review.

7. 20240004 – Gross negligence, incompetency, or misconduct in engineering.

Summary:
A complaint filed against a civil engineer based on information received from an entity. Concerns three projects and relates to the volume of review comments and the repeated failure to address comments. Concern of design by review.
Status:
Under investigation.

8. 20240005 – Practicing on a suspended license.

Summary:
An engineer whose license was under suspension, offered and took payment for engineering services that were not deliverable.
Status:
Under board liaison review.

10.b. Probation Reports

10. b. Probation reports

Probation Summary:

Name	Case #	Status/Action	Date Ending
Dooley Riva	20190001	Good Standing	October 10, 2029
Lazell Preator	20190008 & 20200003	Non-compliant	*to be advised*
Robert Mercado	20230005	Under review	June 1, 2025
Jason Caster	20210004	Good Standing	February 1, 2025
M Armando Monarrez	20210011	Good Standing	February 1, 2025
Mark Johnson	20220004	Good Standing	August 15, 2025
Buckley Blew	20230004	Good Standing	August 15, 2026
Andrew Hammond	20220009	Good Standing	February 1, 2026

Payment Summary:

Name	Case #	Paid	Remaining	Final Due Date
Dooley Riva	20190001	$20,800.00	$3,950.00	September 12, 2024
Lazell Preator	20190008 & 20200003	$6,569.50	$3,200.00	October 15, 2023
Jason Caster	20210004	$6,627.50	$500.00	July 29, 2024
Andrew Hammond	20220009	$8,700.00	$0.00	May 12, 2024

Robert “Dooley” Riva, PE 018231
Case Number: 20190001
Violation of NRS 625.520, NRS 625.565, NAC 625.510, and NAC 625.610

Mr Riva allowed his license to lapse on December 31, 2009, and continued to practice professional engineering with an expired license until self-reporting to the Board on January 10, 2019.

Mr Riva admitted, during the investigation in this matter, that he stamped, signed, and put false expiration dates for his license on the plans that he had submitted to reviewing agencies, as well as to his clients.

Mr Riva has maintained his California Professional Engineering license throughout this period from December 31, 2009, to the present. Mr Riva's California license is currently in good standing. A third-party competency review of a sampling of the thirty-seven (37) identified Nevada projects, that Mr Riva stamped while unlicensed has been completed, and his work was found to be competent.

NRS 625.410 states that the Board may take disciplinary action against a licensee for practicing after the license of the professional engineer has expired or has been suspended or revoked. NRS 625.520 also states that it is unlawful for any professional engineer to practice in a discipline of professional engineering in which the Board has not qualified him and for any person to use an expired license. Accordingly, NRS 625.565 makes it unlawful for any person to impress any documents with the stamp of a professional engineer after that person's license has expired. In addition, NAC 625.610 requires that licensees include the date of expiration of his or her license on the stamp or seal. Moreover, under NAC 625.510, licensees must be honest and impartial, and serve their employers, clients, and the public with devotion. Mr Riva has violated the aforementioned provisions by continuing to practice professional engineering for nine (9) years after the expiration of his license and knowingly falsifying expiration dates when signing and stamping plans for submission to building departments for permits.

NRS 625.410(5) authorizes the State Board to take disciplinary action against a licensee for a violation of any provision of NRS Chapter 625 or NAC Chapter 625. Further, pursuant to NAC 625.640(3)(b)(2) this matter may be resolved without a formal hearing by Stipulated Agreement.

Mr Riva and the State Board hereby stipulate to the following terms for the above-referenced violation(s):

1. Mr Riva's license shall be reinstated and suspended for ten (10) years immediately following entry of this Agreement, but with the suspension stayed and probation imposed for the duration of that time period.

2. The stay of Mr Riva's license suspension may be lifted by the State Board upon notice and the opportunity for Mr Riva to be heard should Mr Riva fail to abide by the terms hereof.

3. Mr Riva's successful completion of probation is expressly conditioned upon his full compliance with the following conditions of probation:

a. Mr Riva shall pay all of the State Board's legal and investigative costs associated with this matter, in the total amount of Two Thousand Three Hundred Fifty and No/100 Dollars ($2,350.00), which includes One Thousand Three Hundred Fifty and No/100 Dollars ($1,350.00) in legal fees and One Thousand and No/100 Dollars ($1,000.00) for the cost for a third-party competency review of a sampling of the thirty-seven (37) projects stamped by Mr Riva while practicing without a license. This payment is due to the State Board within thirty (30) days of the State Board's acceptance and execution of this First Revised Stipulated Agreement.

b. Mr Riva shall pay an administrative fine to the State Board in the amount of Fifteen Thousand and No/100 Dollars ($15,000.00), plus Two Hundred and No/100 Dollars ($200.00) for each of the thirty-seven (37) projects lawfully stamped by Mr Riva, for a total of Twenty-Two Thousand Four Hundred and No/100 Dollars ($22,400.00). Two Thousand Six Hundred Fifty and No/100 Dollars ($2,650.00) of this amount is due to the State Board within thirty (30) days of the Board's acceptance and execution of this First Revised Stipulated Agreement. The balance thereof shall be due in five (5) equal annual installments of Three Thousand Nine Hundred Fifty and No/100 Dollars ($3,950.00). The first (1st) due on or before one year of the State Boards acceptance and execution of this First Revised Stipulated Agreement, and the remaining four payment due on or before each subsequent anniversary thereof, through the fifth (5th) anniversary of the State Boards acceptance and execution of this First Revised Stipulated Agreement.

c. Mr Riva shall undertake and assume all costs associated with reviewing and re-stamping the drawings associated with the aforementioned projects that are on file with the appropriate building departments and provide the Board with sufficient proof thereof.

d. Mr Riva registering in, paying for, and completing an advanced level ethics course with Texas Tech University Murdough Center for Engineering Professionalism, and providing proof of completion thereof to Board staff within one (1) year of the date of full execution of this First Revised Stipulated Agreement.

LAST PROBATION REPORTS DUE October 1, 2029

PROBATION REPORT
(MUST BE TYPED)

Print Form

PROBATIONER: Robert Dooley Riva — PE/PLS #: 018231

EMPLOYER: Riva Engineering & Consulting

PROBATION REPORT SUMITTED FOR THE PERIOD OF: 2024-1-16 THROUGH 2024-3-15

CLIENT:

NAME: DAVID TENNEY

ADDRESS: dt@nvbestrvstoragellc.com

CITY: STATE: ZIP CODE:

PROJECT:

NAME: TENNEY RESIDENCE

LOCATION OF PROJECT: 1070 SKYLAND DRIVE

CITY: ZEPHYR COVE STATE: NV ZIP CODE: 89448

SIZE: 5880 SF START DATE: 1.19.24 END DATE: NA

STATUS OF PROJECT: Design Development and Construction Documents are 80% complete

FEE PAID BY CLIENT: $17,280

SCOPE OF WORK:

DESIGN DEVELOPMENT & CONSTRUCTION DOCUMENTS

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

PROVIDE LATERAL AND GRAVITY ANALYSIS, COORDINATION WITH ARCHITECT, PROVIDE FRAMING PLANS AND STRUCTURAL DETAILING, ISSUE FOR COUNTY SUBMITTAL

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

MY NV LICENSE IS NOT EXPIRED

SIGNATURE: Robert D. Riva DATE March 18, 2024

(Please print, sign, date, then scan and email report to board@boe.state.nv.us)

PROBATION REPORT
(MUST BE TYPED)

Print Form

PROBATIONER: Robert Dooley Riva PE/PLS #: 018231

EMPLOYER: Riva Engineering & Consulting

PROBATION REPORT SUMITTED FOR THE PERIOD OF: 2024-1-16 THROUGH 2024-3-15

CLIENT:

NAME: MARY ODGERS

ADDRESS: maryodgers3@gmail.com

CITY: STATE: ZIP CODE:

PROJECT:

NAME: 155 HOLLY LANE DECK CONSULTING

LOCATION OF PROJECT: 155 HOLLY LANE

CITY: ZEPHYR COVE STATE: NV ZIP CODE: 89448

SIZE: 5880 SF START DATE: 1.18.24 END DATE: NA

STATUS OF PROJECT: CONSULTING AND FEASIBILITY FEEDBACK PROVIDED TO CLIENT

FEE PAID BY CLIENT: $1,000

SCOPE OF WORK:

INVESTIGATION AND CONSULTING

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

SITE VISIT TO RESEARCH EXISTING DECK FRAMING, ANALYSIS TO SEE IF EXISTING FRAMING IS ADEQUATE TO SUPPORT ADDITIONAL LOADING FROM HOT TUB, PROVIDE FEASIBILITY FOR STRENGTHENING DECK AS REQUIRED TO SUPPORT ADDITIONAL LOADING

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

MY NV LICENSE IS NOT EXPIRED

SIGNATURE: Robert D. Riva DATE March 18, 2024

(Please print, sign, date, then scan and email report to board@boe.state.nv.us)

Lazell Preator, PE 014982

Case Numbers: 20190008 and 20200003

Violations: NRS 625.410(2), NRS 625.540, NRS 625.560, NAC 625.510, NAC 625.530, and NAC 625.540

Previous 2018 Complaint and Stipulated Agreement

Before setting forth the facts for the two complaints at issue, the following summation of a previous Stipulated Agreement is relevant. A Stipulated Agreement was entered by and between the State Board and Mr Preator on November 8, 2018 ("2018 Stipulated Agreement'"), regarding previous Complaint number 20180006. In the 2018 Stipulated Agreement, Mr Preator acknowledged violations of NRS Chapter 625 in which his conduct constituted gross negligence, incompetence, or misconduct in the practice of professional engineering and failure to exercise due care and oversight in submitting the plan set to the office of the Deputy Building and Safety Director for the City of Las Vegas.

The facts pertaining to the 2018 Stipulated Agreement involved the filing of a complaint alleging the submission of plans containing the forged signatures of two senior building officials in an attempt to obtain a building permit.

Specifically, on March 7, 2018, the office of the Deputy Building and Safety Director for the City of Las Vegas received a plan set. The plan set included an irregular and misspelled signature of the City Engineer, Allen Pavelka, with his name signed "Alan" as opposed to the proper spelling “Allen." The plan set further included a signature of a retired Director of Building and Safety, Chris Knight. Mr Preator asserted that he relied on a third party, Jorge Guzman, to acquire said signatures, and that said third party, unbeknownst to Mr Preator, obtained or affixed the forged signatures. Although Mr Preator denied forging the signatures at issue, he admitted that he is responsible for documents that he seals and signs and that he is responsible to use due care and oversight to manage originals and copies of alI documents he has signed and sealed.

In the 2018 Stipulated Agreement, Mr Preator's Nevada license was placed on probation for twelve (12) months. As part of his probation, Mr Preator was required to pay certain fines, costs, and fees, and require that he write a Whitepaper on Responsible Charge. The probation under the 2018 Stipulated Agreement has since been completed.

Case No. 20190008 - "Forgery Case"

In regard Case No. 20190008, a complaint has been submitted against Mr Preator by the Executive Director for the State Board on behalf of a professional land surveyor, alleging fraudulent stamping and signing of legal descriptions.

Specifically, On December 18, 2017, Mr Preator submitted two legal descriptions for a project on Du Fort Avenue to the City of Henderson. The complainant land surveyor inadvertently discovered the two legal descriptions while reviewing projects on the City of Henderson website in August 2019. The two legal descriptions were produced for Preator Consulting by the land surveyor. However, Preator Consulting had not paid for the work, and thus, the land surveyor had not completed the work, as he had not signed or dated the two legal descriptions. The two legal descriptions were, hand signed, dated and submitted to the city on December 18, 2017.

In an effort to explain how the legal descriptions at issue were fraudulently signed, Mr Preator asserts that he relied on the same third-party blamed in the 2018 Stipulated Agreement, i.e., Jorge Guzman, to obtain the stamp and signature of the land surveyor before submitting the legal descriptions now at issue. Mr Preator again asserts that Jorge Guzman must have forged the surveyor's signature before submitting the legal descriptions to the City of Henderson. Although Mr Preator denied forging the signatures at issue, he admits that he is responsible for documents that he submits and that he is responsible to use due care and oversight to manage originals and copies of all said documents.

Mr Preator has not been able to provide any information or documentation regarding his working relationship with Mr Guzman, or any evidence that Mr Guzman exists.

NRS 625.410(2) provides authority for the State Board to administer discipline in Nevada for any gross negligence, incompetency, or misconduct in the practice of professional engineering as a professional engineer. NRS 625.410(5) provides authority for the State Board to administer discipline in Nevada for a violation of any provision of NRS Chapter 625. A licensee violates NRS 625.540 by unlawfully practicing land surveying. Specifically, it is unlawful to present or attempt to use, as his or her own, the license or stamp of another person and to impersonate any other licensee of the same or a different name. Additionally, it is a violation of NRS 625.560 to sign a description unless the person holds an unsuspended and unrevoked license as a professional land surveyor.

NRS 625.4I0(5) provides authority for the State Board to administer discipline in Nevada for a violation of any regulation adopted by the Board. A licensee violates NAC 625.510 by failing to uphold and advance the honor and dignity of the profession by maintaining high standards of ethical conduct regarding honesty. It is a violation of NAC 625.530 for a licensee to fail to act in professional matters as a faithful agent. A licensee violates NAC 625.540(1) by failing to take care that credit for engineering or land surveying work is given to those to whom credit is properly due and violates NAC 625.540(4) by failing to not maliciously injure the professional reputation, business prospects or practice of another engineer or land surveyor.

Based on the foregoing, Mr Preator stipulates that he violated NRS 625.410 (2), in that his conduct constituted gross negligence, incompetence, or misconduct in the practice of professional engineering. Mr Preator stipulates that he violated NRS 625.540 by unlawfully practicing land surveying by presenting the license or stamp of another person and by impersonating another licensee. Likewise, Mr Preator stipulates that he violated NRS 625.560 by signing a description without a license as a professional land surveyor.

Further, Mr Preator stipulates that he violated NAC 625.510 by failing to uphold and advance the honor and dignity of the profession by maintaining high standards of ethical conduct regarding honesty. In addition, Mr Preator stipulates that he violated NAC 625.530 by failing to act in professional matters as a faithful agent. Finally, Mr Preator stipulates that he violated NAC 625.540 by failing to take care that credit for land surveying work was given to those to whom credit was properly due and by failing to not maliciously injure the professional reputation, business prospects or practice of another engineer or land surveyor.

Case No. 20200003 - "Faithful Agent Case"

In regard Case No. 20200003, a complaint has been submitted against Mr Preator alleging misconduct and failure to meet terms of a contract.

Specifically, on February 2, 2018, the complainant contracted with Mr Preator to provide civil engineering for an auto body repair shop construction project, and paid Mr Preator a $7,100 retainer. Per the contract, Mr Preator was to begin working on the project within two days of receiving the retainer. Between February 2018 and February 2020, no work product was provided to the client nor to the professionals and contractors working on the client's behalf. There were various interactions and requests for updates on the status of the project. Mr Preator asserts that, during the project, he was unable to speak with the architect on the project, from whom Mr Preator asserts that he received differing site plans. Nevertheless, Mr Preator informed the client that various items were under review by planning authorities, even though they were never actually submitted.

NRS 625.410(2) provides authority for the State Board to administer discipline in Nevada for any gross negligence, incompetency, or misconduct in the practice of professional engineering as a professional engineer. NRS 625.410(5) provides authority for the State Board to administer discipline in Nevada for a violation of any regulation adopted by the Board. A licensee violates NAC 625.510 by failing to uphold and advance the honor and dignity of the profession by maintaining high standards of ethical conduct regarding honesty. It is a violation of NAC 625.530 when a licensee fails to act in professional matters as a faithful agent.

Based on the foregoing, Mr Preator stipulates that he violated NRS 625.410(2), in that his conduct constituted gross negligence, incompetence, or misconduct in the practice of professional

engineering. Further, Mr Preator stipulates that he violated NAC 625.510 by failing to uphold and advance the honor and dignity of the profession by maintaining high standards of ethical conduct regarding honesty. Finally, Mr Preator stipulates that he violated NAC 625.530 by failing to act in a timely and professional matters as a faithful agent.

Pursuant to NAC 625.640, a disciplinary matter may be resolved without a formal hearing by a Stipulated Agreement. To that end, to resolve Complaint Numbers 2019008 and 20200003, Mr Preator and the State Board resolve this matter on the following basis:

(1) Mr Preator's Nevada license shall be suspended for thirty-six (36) months following entry of this Agreement, pursuant to NRS 625.410 (2) and NAC 625.530, but with the suspension stayed and probation imposed for the duration of that time period.

(2) The stay of Mr Preator's suspension may be lifted by the State Board upon notice and the opportunity to be heard should Mr Preator fail to abide by the terms hereof.

(3) Mr Preator's successful completion of probation is expressly conditioned upon his full compliance with the following conditions of probation:

(a) Mr Preator shall pay a fine of Five Thousand and Noll 00 Dollars ($5,000.00) for the Forgery Case and a fine of Two Thousand and No/I 00 Dollars ($2,000.00) for the Faithful Agent Case, for a total fine of Seven Thousand and No/100 Dollars ($7,000.00), within six (6) months of acceptance and execution of this Agreement by the State Board.

(b) Mr Preator shall pay the professional land surveyor in full under his contract therewith for work on the Du Fort project.

(c) Mr Preator shall pay for cost of hiring a Nevada licensed professional land surveyor to review, re-stamp and sign the Du Fort legal descriptions.

(d) Mr Preator shall immediately notify client and the relevant public entity via letter, with copy to the Board, of the necessity of the Du Fort legal descriptions to be re- submitted with lawful stamping and signature.

(e) Mr Preator shall reimburse in full the deposited amount the complainant paid for the Autobody Repair Shop project.

(f) Mr Preator shall pay the State Board Two Thousand Seven Hundred Sixty-Nine and 50/100 Dollars ($2,769.50) as reimbursement of administrative expenses in this matter.

(g) Mr Preator registering in, paying for and completing an entry level ethics course with Texas Tech University Murdough Center for Engineering Professionalism, and providing proof of completion thereof to Board staff.

(h) Mr Preator shall provide to the State Board staff, within thirty (30) days of execution of this agreement by the State Board, a list of projects that were submitted for governmental review in 2017 and 2018, and provide project names, clients, and to which agencies submissions were made. These submissions will be reviewed by State Board staff to determine and identify any other possible statutory and/or regulatory violations.

(i) Mr Preator shall submit detailed bi-monthly probation reports to the Executive Director of the Nevada Board, which shall report any work completed in Nevada during the previous two (2) month period. A report shall be filed even if no work is performed in Nevada during the previous two (2) month period. The first report shall be due within two (2) months of the effective date of this Stipulated Agreement. Each report shall include client contact information and a copy of the contract executed for any work in Nevada, including the scope of work detail.

(j) Mr Preator shall provide proof of the completion of thirty (30) professional development hours that are required on a biennial basis for license renewal, pursuant to NAC 625.430 and NAC 625.480.

LAST PROBATION REPORTS DUE to be determined.

Lazell Preator, PE 014982
Case Numbers: 20190008 and 20200003
Violations: NRS 625.410(2), NRS 625.540, NRS 625.560, NAC 625.510, NAC 625.530, and NAC 625.540

As of April 25, 2024, the following probation report has not been received:

- Nevada work performed Nov 14, 2022 – Jan 31, 2023. (reports due April 1, 2023)

Robert Mercado, PLS 010352
Case Number: 20210001 and 20230005
Violation of NRS 625.410(5), NRS 625.340, NAC 625.425, NAC 625.545, and NRS 625.410 (8)

Case No. 20210001 - "Faithful Agent Case"

On September 10, 2020, Sundance Surveying, Inc was hired to provide surveying and mapping services for a vacant property located in Las Vegas. As part of the contract, Mr Mercado was to file a Record of Survey Map with the Clark County Recorder's Office. Although the contract did not contain an anticipated date of completion, Mr Mercado informed his client that the work would only take a few weeks. Mr Mercado completed the survey on October 11, 2020, and emailed the survey map to his client on October 12, 2020. The survey map was not recorded at that time. On October 16, 2020, Mr Mercado was paid in full for his work.

Thereafter, the client made numerous attempts to contact Mr Mercado regarding the status of the recordation of the survey map, but he was unresponsive. As a result of Mr Mercado's unresponsiveness, coupled with his failure to have the survey map recorded, a complaint was filed on January 12, 2021. When contacted by the State Board, the complainant stated that she filed the complaint in an effort to prompt Mr Mercado to record the survey map and her only objective in filing the complaint was to ensure the survey map was recorded.

On January 14, 2021, the State Board staff left a voicemail for Mr Mercado regarding the complaint. On January 19, 2021, Mr Mercado responded to staff's voicemail and informed the State Board that, although the survey map had not yet been recorded, he intended to file it with the Clark County Recorder's Office on January 22, 2021. Mr Mercado did not file the survey map with the Clark County Recorder's Office on January 22, 2021, as promised. On two more occasions (January 26, 2021, and February 1, 2021), Mr Mercado assured the State Board staff that the survey map would be recorded, however, in each instance, Mr Mercado failed to make good on his promises. During this time, Mr Mercado provided a number of explanations for the delay in filing the survey map, which have not proven to be credible. As of February 5, 2021, the survey map was still not recorded.

On February 5, 2021, the State Board staff requested that Mr Mercado submit a formal response to the Complaint no later than March 8, 2021. The State Board staff followed up with Mr Mercado on multiple occasions in that regard. On March 8, 2021, Mr Mercado informed the State Board staff that he would be submitting his formal response to the complaint by the end of the day, but he did not.

On March 8, 2021, nearly 150 days after the survey was completed, the survey map was recorded with the Clark County Recorder's Office. The survey was stamped, signed, and dated by Mr Mercado on March 7, 2021.

On March 9, 2021, Mr Mercado submitted his formal response to the complaint. The State Board staff still determined that Mr Mercado's actions were in violation of various provisions of NRS Chapter 625 and NAC Chapter 625

It is a violation of NAC 625.425 for a land surveying firm to engage or offer to engage in the practice of professional engineering without first registering with the State Board and paying the annual fee of Fifty and No/100 Dollars ($50.00).1 It is a violation of NAC 625.545 to fail to provide a written contract to each client which sets forth the scope of work, costs, and anticipated date of completion of the work.2 It is a violation of NRS 625.340 to fail to file a survey map with the county recorder in the county in which the survey was made a record of survey relating to land boundaries and property lines within ninety (90) days of the creation of such survey.3 It is a violation of NAC 625.530 for a licensee to fail to act in professional matters as a faithful agent.

Based on the foregoing, Mr Mercado stipulates that he violated NAC 625.425 by failing to register Sundance Surveying, Inc. with the State Board for the past ten (10) years. Further, Mr Mercado stipulates that he violated NAC 625.545 by failing to include the anticipated date of completion in his written contract with his client. Also, Mr Mercado stipulates that he violated NRS 625.340 by failing to file the survey map with the Clark County Recorder within ninety (90) days of the creation of such survey map. Finally, Mr Mercado stipulates that he violated NAC 625.530 by failing to act in professional matters as a faithful agent of his client in connection with his performance of the services therefor.

Pursuant to NAC 625.640, a disciplinary matter may be resolved without a formal hearing by a Stipulated Agreement. To that end, to resolve the complaint, Mr Mercado and the State Board resolve this matter on the following basis:

(1) Mr Mercado shall pay an administrative fine of $1,500.00 for his violations of NAC 625.545, NRS 625.340 and NAC 625.530 within 90 days of the board's approval of the stipulated agreement.
(2) Mr Mercado shall reimburse the State Board $2,271.00 for administrative expenses in this matter.
(3) Mr Mercado shall prepare and submit a whitepaper within 90 days of the board's approval of the stipulated agreement on the following topics:
- a) Elements necessary for a valid written contract for providing professional land surveying

services in the State of Nevada (NAC 625.545).
- b) Applicable deadlines and requirements for the timely recordation of records of surveys (NRS 625.340).

(4) Mr Mercado's Nevada license shall be suspended for twenty (24) months following entry of this agreement, but with the suspension stayed and probation imposed for the duration of that time period.

Case No. 20230005 - "Failure to Comply with Stipulated Agreement Case"

The board initiated a complaint against Mr Mercado for failing to comply with the stipulated agreement for the above referenced complaint executed on July 14, 2021. The terms of the settlement required filing bi-monthly probation reports for work performed in Nevada, submitting a white-paper, reimbursement of board legal fees, and payment of an administrative fine.

Mr Mercado failed to meet the milestone dates for submissions required by the agreement. Board staff offered extended milestone dates and a payment plan for the fees and fine, which were acceptable to by Mr Mercado. Mr Mercado continued to not meet the terms of the stipulated agreement despite the accommodations made for extending the milestones and the payment plan.

The board notified Mr Mercado, via written notice, to appear at a hearing on January 20, 2022, to provide Mr Mercado the opportunity to explain his continued failure to meet the terms of the stipulated agreement. Mr Mercado acknowledged receiving the notice to appear but failed to appear or participate virtually. Based on the presentation of facts at the hearing, and a non-showing of Mr Mercado, the board entered a Decision and Order, dated February 8, 2022, lifting the stay of suspension on Mr Mercado's license.

Due to Mr Mercado's continued failure to satisfy the terms of the July 14, 2021, Stipulated Agreement, even after the February 8, 2022, Decision and Order by the board to lift the stay on his license suspension, the board filed a second complaint which was heard on May 11, 2023, after due notice was provided to Mr Mercado.

At the May 11, 2023, hearing, Mr Mercado admitted and acknowledged that he had continually failed to abide by the terms of the stipulated agreement by failing to make timely payments of fees and fines, not submitting the white-paper as specified, and not meeting submittal dates for bi-monthly probation reports, and that he also no-showed to the January 20, 2022, hearing.

Mr Mercado paid the over-due fees and fines, submitted the delinquent whitepaper, and provided all required bi-monthly probation reports on May 9, 2023, two days prior to the May 11, 2023, hearing.

Upon hearing the matter and deliberation, the board ordered the following:

(1) Mr Mercado's Nevada Professional Land Surveying license was suspended through July 24, 2025, but the suspension is stayed, and probation imposed for the duration of the stayed suspension.

(2) Mr Mercado is to submit detailed bi-monthly probation reports to board staff for any Nevada work complete during the previous two-month period.

(3) The stay of Mr Mercado's license suspension may be lifted by the board, upon due notice and the opportunity to be heard, should Mr Mercado fail to abide by the terms above.

LAST PROBATION REPORTS DUE June 1, 2025

Robert Mercado, PLS 010352
Case Numbers: 20230005
Violations: NRS 625.410(8)

As of April 25, 2024, the following probation reports has not been received:

- Nevada work performed Nov 12, 2023 – Jan 11, 2024. (reports due February 1, 2024)
- Nevada work performed Jan 12, 2024 – Mar 11, 2024. (reports due April 1, 2024)

Jason Caster, PLS 019338
Case Number: 20210004
Violation of NRS 625.410(2), NRS 625.565(2) and NAC 625.545

On or about February 25, 2021, the State Board received a complaint against Mr Caster. The complaint alleged incompetence and failure to provide a written contract. In July 2019, Mr Caster was hired to perform a boundary survey on a property and requested, through email, that Mr Caster locate property corners, stake them, and create an exhibit. Mr Caster completed the boundary survey in August 2019. In September 2019, the client requested Mr Caster to perform a topographic map and encumbrance survey. The survey was completed in October 2019. In June 2020, the project had been through the design and review process and subsequently permitted.

During construction, it was discovered that Mr Caster's survey was "busted" horizontally by approximately 6 feet and vertically by 7 inches. In June 2020, Mr Caster was made aware of the error. Subsequently, the client, through his company, filed a court action for damages against Mr Caster. In February 2021, Mr Caster filed for bankruptcy.

Mr Caster planned to use the boundary survey as the basis and control for the topographic survey, but Mr Caster did not perform the topographic map himself. Rather, Mr Caster had an employee of his company that is not a Professional Land Surveyor do the field work and create the map. Mr Caster failed to notice the errors in the topographic survey, and Mr Caster's failure to maintain responsible charge of the work performed resulted in the errant map being released to the client.

No formal contract was executed between Mr Caster and the client. Mr Wagner and Mr Caster exchanged emails for surveying services, including the scope of the project, cost, and time frame. Mr Caster indicated to client that a contract for the work would be forthcoming, but no contract was ever presented to the client. Additionally, Mr Caster did not disclose to the client that he did not have professional liability insurance until after the damage was done.

Based on the foregoing, Mr Caster stipulates that he violated NRS 625.410(2) and NRS 625.565 (2), as Mr Caster is grossly negligent in fulfilling his obligation as demonstrated by not being in responsible charge of his employee's work. Mr Caster further stipulates that he violated NAC 625.545 by failing to provide an appropriate written contract to a client prior to completion of work he performed.

Pursuant to NAC 625.640, a disciplinary matter may be resolved without a formal hearing by a Stipulated Agreement. To that end, to resolve the complaint, Mr Caster and the State Board resolve this matter on the following basis:

1. Mr Caster's Nevada license shall be suspended for three (3) years following entry of this Agreement, pursuant to NRS 625.410 (2) and NAC 625.530, but with the suspension stayed and probation imposed for the duration of that time period.

2. Mr Caster shall submit detailed bi-monthly probation reports to the Executive Director of the State Board, which shall report any work completed in Nevada during the previous two (2) month period. The first report shall be due within two (2) months of the effective date of this Stipulated Agreement. Further, when stamping any work in Nevada, Mr Caster shall have his work reviewed by another Nevada licensed surveyor, and the cost therefor shall be paid by Mr Caster. When submitting his bi-monthly probation reports to the Executive Director, said reports shall include an attestation of review from the Nevada licensed surveyor for any work listed in the probation report that required a stamp by Mr Caster. A probation report shall be filed even if no work was performed in Nevada during the previous two (2) month period.

3. Mr Caster's successful completion of probation is expressly conditioned upon his full compliance with the following conditions of probation:

(a) Mr Caster shall pay a fine of Five Thousand and No/100 Dollars ($5,000.00), payable in ten (I0) quarterly payments of Five Hundred and No/I 00 Dollars ($500.00) apiece, the first due three (3) months from the date of acceptance and execution of this Agreement by the State Board, and the final due thirty (30) months from the date of acceptance and execution of this Agreement by the State Board.

(b) Mr Caster shall pay the State Board Two Thousand One Hundred Twenty-Seven and 50/100 Dollars ($2,127.50) as reimbursement of legal and administrative expenses expanded by the State Board in this matter, within six (6) months of acceptance and execution of this Agreement by the State Board.

(c) Mr Caster shall provide to the State Board staff, within thirty (30) days of execution of this agreement by the State Board, an attestation that he has reviewed the current statutes under NRS Chapter 625 and regulations under NAC Chapter 625.

(d) Mr Caster shall prepare a White Paper and submit it to the Executive Director of the State Board within sixty (60) days of the State Board's approval of this Stipulated Agreement, for

State Board review and approval, on the meaning of being in responsible charge of land surveying, as it is defined under Nevada law.

LAST PROBATION REPORTS DUE February 1, 2025

PROBATION REPORT
(MUST BE TYPED)

Print Form

PROBATIONER: Jason E. Caster

PE/PLS #: 19338

EMPLOYER: Multnomah County

PROBATION REPORT SUMITTED FOR THE PERIOD OF: Feb 1, 2024 THROUGH: Mar 31, 2024

CLIENT:

NAME:

ADDRESS:

CITY: STATE: ZIP CODE:

PROJECT:

NAME:

LOCATION OF PROJECT:

CITY: STATE: ZIP CODE:

SIZE: START DATE: END DATE:

STATUS OF PROJECT:

FEE PAID BY CLIENT:

SCOPE OF WORK:

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

I did not perform any work in the State of Nevada during this time period.

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

SIGNATURE: Jason Caster, PLS Digitally signed by Jason Caster, PLS Date: 2024.03.31 10:28:55 -07'00'

DATE: April 1, 2024

(Please print, sign, date, then scan and email report to board@boe.state.nv.us)

M Armando Monarrez, PE 019652
Case Number: 20210011
Violation of NAC 625.530(1) and NAC 625.545

In 2017, Mr Monarrez's current client was contracted with the then President of CVL, to provide civil engineering services for a project in Henderson, Nevada. This project was a master improvement plan that included services such as hydraulic and hydrologic calculations, precise grading and wall plan, sewer plans, and technical drainage study. The contract for this project provided, "[i]f the site plan should change after CVL has commenced work, any revision required will be considered extra to the contract, subject to renegotiation of our fees."

In 2018, when the engineering work was well underway, the President of CVL passed away. CVL was then purchased by Mr Monarrez.

On or about February 12, 2019, Mr Monarrez sent an email to the client stating that part of the original design for the Hills project would no longer work and that he (Mr Monarrez) had revised the design plan.

On or about February 13, 2019, Mr Monarrez sent an email to the client, informing them that his designs could save a significant amount of money. In addition, this email stated, among other things, that "Typically Value Engineering is rewarded at 50/50 between owner and engineer of all cost savings."

On or about May 17, 2019, Mr Monarrez sent a letter to the client titled, "The Hills Value Engineering Agreement" (hereinafter "The Change Order"). The Change Order included a term that stated, "CVL will be compensated with 30% of all construction costs savings from Cut, Blasting, Fill, Over-excavation, Import, Export, and Rock wall construction." The Change Order also included a term that stated, "Growth Construction shall make payments of $50,000 / month until the full compensation (30% of savings) has been paid, or prior to the recordation of the Final Map." The Change Order stated that compensation would be based on the differences between a contractor's bid price on the original design and the revised design.

On or about May 18, 2019, the client sent Mr Monarrez an email that rejected Mr Monarrez's proposed Change Order, stating, "we are NOT in agreement regarding the attached change order."

In the following months, despite the client's rejection, CVL sent invoices pursuant to the requested but rejected Change Order.

Violations and Disciplinary Actions

Pursuant to NAC 625.545, it is a violation for a licensee to perform work for a client before the licensee enters into a written contract with the client. Here, no written contract existed between Mr Monarrez and the client with regard to Mr Monarrez receiving a certain percentage of the costs saved, and no written contract existed for CVL to invoice the client $50,000 per month. Even if Mr Monarrez believed a verbal agreement existed between him and the client, NAC 625.545 is clear that a written contract must exist before a licensee performs work for a client. Thus, Mr Monarrez's actions were in violation of NAC 625.545, as he performed work without a written contract and sent invoices pursuant to his proposed Change Order that was not accepted by the client.

Further, pursuant to NAC 625.530, it is a violation for a professional engineer to fail to act as a faithful agent or trustee for each client in the professional engineer's relations with his or her clients. As noted previously, the client had rejected Mr Monarrez's proposal for the Change Order, but Mr Monarrez continued to submit invoices pursuant to the Change Order over several months. Such behavior is not acting as a faithful agent for a client in the professional engineer's relationship. Accordingly, Mr Monarrez's actions violated NAC 625.530.

Based on the foregoing, Mr Monarrez stipulates that he violated NAC 625.545 and NAC 625.530(1).

Pursuant to NAC 625.640, a disciplinary matter may be resolved without a formal hearing by a Stipulated Agreement. To that end, to resolve the complaint, Mr Monarrez and the State Board resolve this matter on the following basis:

1. Mr Monarrez's Nevada license shall be suspended for twenty-four (24) months following entry of this Agreement, but with the suspension stayed and probation imposed for the duration of that time period. The stay of Mr Monarrez's suspension may be lifted by the State Board, upon notice and the opportunity to be heard, should Mr Monarrez fail to abide by the terms hereof. Mr Monarrez's successful completion of probation is expressly conditioned upon his full compliance with the following conditions of probation:

(a) Mr Monarrez shall submit detailed bi-monthly probation reports to the Executive Director of the State Board, which shall report any work completed in Nevada during the previous two (2) month period. A report shall be filed even if no work is performed in Nevada during the previous two (2) month period. The first report shall be due within two (2) months of the effective date of this Stipulated Agreement. Each report shall include client contact information and a copy of the contract executed for any work in Nevada, including the scope of work detail.

(b) Mr Monarrez shall pay an administrative fine of Two Thousand and No/100 Dollars ($2,000.00) within six (6) months of acceptance and execution of this Agreement by the State Board.

(c) Mr Monarrez shall pay the State Board Three Thousand Sixteen and No/100 Dollars ($3,016.00) as reimbursement of legal expenses expended by the State Board in this matter, within six (6) months of acceptance and execution of this Agreement by the State Board.

(d) Mr Monarrez shall, within one (1) year of the effective date of this Stipulated Agreement, successfully complete an intermediate level ethics course with Texas Tech University, Murdough Center for Engineering Professionalism, and submit proof of completion to the Board within sixty (60) days of completion of the course.

(e) Within thirty (30) days of license renewal, Mr Monarrez shall provide proof of completion of thirty (30) professional development hours that are required on a biennial basis for license renewal, pursuant to NAC 625.430, NAC 625.470 and NAC 625.480.

LAST PROBATION REPORTS DUE February 1, 2025

PROBATION REPORT
(MUST BE TYPED)

PROBATIONER: M. Armando Monarrez PE/PLS #: 019652

EMPLOYER: CVL Nevada, Inc.

PROBATION REPORT SUMITTED FOR THE PERIOD OF: 1/20/2024 THROUGH: 03/19/2024

CLIENT

NAME: Clark County Water Reclamation District

ADDRESS: 5857 E. Flamingo Rd.

CITY: Las Vegas STATE: NV ZIP CODE: 89122

PROJECT

NAME: 20104 – Collection System Rehabilitation

LOCATION OF PROJECT: Clark County Nevada Service Area

CITY: Las Vegas STATE: NV ZIP CODE: 89122

SIZE: All over Valley START DATE: 01/25/21 END DATE: 10/31/23

STATUS OF PROJECT: CVL submitted Bid Documents & assisting with Bid Services

FEE PAID BY CLIENT: $4,983

SCOPE OF WORK:

Prepare contract documents including plans and specifications for rehabilitation of approximately 300 sewer pipe assets and 200 sewer manholes all over the CCWRD service area. The tasks include project management, pre-design report, dewatering evaluation, CCTV, potholes, survey, drawings, and specifications.

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

I am the project manager and stamping engineer. I perform all project management tasks, coordinate with subconsultants, submit invoices, review pothole data, review CCTV, coordinate with CCWRD representatives, perform QC on the plans, write the specifications for the project, and responsible for the success of the project in the engineering design phase.

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

I do not performed tasks that are outside the scope of work without having a written change order/additional service request. I do not invoice for any tasks for which I do not have a written contract or change order for.

SIGNATURE: DATE: 04/01/24

PROBATION REPORT
(MUST BE TYPED)

PROBATIONER: M. Armando Monarrez PE/PLS #: 019652

EMPLOYER: CVL Nevada, Inc.

PROBATION REPORT SUMITTED FOR THE PERIOD OF: 1/20/2024 THROUGH: 3/19/2024

CLIENT

NAME: 15 Rockstream LLC (John DiBetta)

ADDRESS: 15 Rockstream Dr

CITY: Henderson STATE: NV ZIP CODE: 89074

PROJECT

NAME: Ascaya Lot 64

LOCATION OF PROJECT: 15 Rockstream Dr

CITY: Henderson STATE: NV ZIP CODE: 89012

SIZE: 640 acres START DATE: 01/01/24 END DATE: 03/31/24

STATUS OF PROJECT: Plot and Grading Plans

FEE PAID BY CLIENT: $7,500

SCOPE OF WORK:

Performed plot and grading plans for a custom home.

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

I personally attend coordinate with the architectural team, grade the site, review the drawings and address redlines with my designer.

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

I do not performed tasks that are outside the scope of work without having a written change order/additional service request. I do not invoice for any tasks for which I do not have a written contract or change order for.

SIGNATURE: DATE: 04/01/24

PROBATION REPORT
(MUST BE TYPED)

PROBATIONER: M. Armando Monarrez PE/PLS #: 019652

EMPLOYER: CVL Nevada, Inc.

PROBATION REPORT SUMITTED FOR THE PERIOD OF: 1/20/2024 THROUGH: 03/19/2024

CLIENT

NAME: Ascaya Inc

ADDRESS: 1 Ascaya Blvd

CITY: Henderson STATE: NV ZIP CODE: 89012

PROJECT

NAME: Ascaya Canyon

LOCATION OF PROJECT: APN:178-33-314-016

CITY: Henderson STATE: NV ZIP CODE: 89012

SIZE: 132.77 acres START DATE: 12/01/21 END DATE: 12/31/24

STATUS OF PROJECT: Preparing revisions on plans and providing assistance during construction

FEE PAID BY CLIENT: $12,187

SCOPE OF WORK:

Perform Engineering Services for up to 80 Condominium unit project in the hillside including, assistance with Zone Change, Tentative Map, Survey, Drainage Study, Traffic Study, Water Network Analysis, Water Master Plan, Civil Improvement Plans, and Final Map.

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

I am the project manager and stamping engineer for the civil engineering tasks. I coordinate the progress with the design team including sub-consultants. I update the client with the progress of the project and review the changes the architect makes to make sure we are staying in compliance. I personally prepared the grading design, utility design, and QC the plans, survey, and drainage study.

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

I do not performed tasks that are outside the scope of work without having a written change order/additional service request. I do not invoice for any tasks for which I do not have a written contract or change order for.

SIGNATURE: DATE: 04/01/24

PROBATION REPORT
(MUST BE TYPED)

PROBATIONER: M. Armando Monarrez PE/PLS #: 019652

EMPLOYER: CVL Nevada, Inc.

PROBATION REPORT SUMITTED FOR THE PERIOD OF: 1/20/2024 THROUGH: 3/19/2024

CLIENT

NAME: Ascaya Inc

ADDRESS: 1 Ascaya Blvd

CITY: Henderson STATE: NV ZIP CODE: 89012

PROJECT

NAME: Ascaya General Services

LOCATION OF PROJECT: 1 Ascaya Blvd.

CITY: Henderson STATE: NV ZIP CODE: 89012

SIZE: 640 acres START DATE: 12/01/21 END DATE: 12/31/24

STATUS OF PROJECT: Perform tasks on T & M as requested by Client

FEE PAID BY CLIENT: $1,537

SCOPE OF WORK:

Perform engineering services as requested by Client. Such services may include revisions to previously approved plans, attend meetings, perform site inspections, coordinate with contractors and client as necessary.

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

I personally attend the meetings, perform field inspections, coordinate with client and contractors. I also review the revisions to the improvement plans and stamp for submittal.

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

I do not performed tasks that are outside the scope of work without having a written change order/additional service request. I do not invoice for any tasks for which I do not have a written contract or change order for.

SIGNATURE: DATE: 04/01/24

Mark Johnson, PE 019830
Case Number: 20220004
Violation of NRS 625.410(2).

In July 2018, a client contracted with Mr Johnson's employer to provide engineering services for a single-family home and work barn located in Gardnerville, NV. These services included the site layout, design of the engineered septic system, mapping of the existing site, submittal to Douglas County, and follow-up. There was an estimated cost for these services, but the actual charges would be based on "time and materials."

Mr Johnson, as the professional engineer in charge on behalf his employer, requested the client commission and provide a Geotechnical Report for the property. SC received this report in late August 2018. This geotechnical report noted that "local groundwater levels are expected to fluctuate during flood irrigation, changes in precipitation, seasonal variations."

The septic tank was installed in July 2019. Soon after the installation, the farmland in the immediate area of the client's home was predictably flood irrigated. Within a week, water was found to have entered into the septic tank as a result of pipes in the system being compromised due to the tank "floating" i.e. vertical displacement, due to the rise in surrounding ground water.

Following discovery of this failure, Mr Johnson recommended a system design change, requiring installation of the tank above-ground (change from gravity flow to pump system). The client agreed to this recommendation.

After installation of the revised septic tank layout, the client learned that the above- ground tanks could have been located anywhere. The client reported that, had she known this, she would have placed the tanks next to the large leach field mound, instead of directly outside her bedroom window, where the revised installation was sited by Mr Johnson. The client questioned whether Mr Johnon's employer would bear responsibility for the extra expense incurred for the reinstallation of the above- ground septic tank system.

Mr Johnson's employer agreed to absorb the engineering fees for the above-ground system, but not the additional expense associated with the removal and reinstallation of the septic tank.

During the investigation, Mr Johnson admitted that he did not anticipate that the flood irrigation would have any impact on the groundwater level.

VIOLATIONS and DISCIPLINARY ACTION

Pursuant to NRS 625.410, in relevant part, the State Board may take disciplinary action against a licensee for “[a]ny gross negligence, incompetency or misconduct in the practice of professional engineering as a professional engineer or in the practice of land surveying as a professional land surveyor.” NRS 625.410(2). Here, Mr Johnson had the information that local groundwater levels would fluctuate during flood irrigation, changes in precipitation, and seasonal variation. Mr Johnson, however, failed to factor the known ground water variability into the in- ground septic tank design.

Based on the foregoing, Mr Johnson stipulates that he was grossly negligent in the engineering of the client’s septic system, and thus in violation of NRS 625.410(2).

NRS 625.410(5) provides authority for the State Board to administer discipline in Nevada for a violation of any NRS Chapter 625 statute and/or any regulation adopted by the State Board. Further, pursuant to NAC 625.640, a disciplinary matter may be resolved without a formal hearing by a Stipulated Agreement.

To that end, to resolve Complaint Number 20220004 now pending, Mr Johnson and the State Board resolve this matter on the following basis:

1.) Mr Johnson’s Nevada license shall be suspended for twenty-four (24) months following entry of this Agreement, but with the suspension stayed and probation imposed for the duration of that time period.

2.) Mr Johnson shall submit, to the State Board, a complete list and description of his projects from July 01, 2018 to December 31, 2022 that involved septic design undertaken by Mr Johnson. The State Board will then randomly select three (3) of those projects to be subjected to an independent third-party peer review to evaluate Mr Johnson’s septic competency as a civil engineer. The third-party engineer shall be selected by the State Board, and Mr Johnson shall be responsible to pay for the services thereof upon presentment of the service’s invoice. The third-party engineer shall have no conflict of interest relating to Mr Johnson, his employer, or the client.

3.) Mr Johnson shall pay an administrative fine of Five Thousand and No/100 Dollars ($5,000.00) within ninety (90) days of acceptance and execution of this Agreement by the State Board. A payment plan may be granted by State Board staff if requested by Mr Johnson and deemed warranted by State Board staff.

4.) Mr Johnson shall pay legal and investigative costs to the State Board a total of Two Thousand One Hundred Six and 50/100 Dollars ($2,106.50) within ninety (90) days of acceptance and execution of this Agreement by the State Board.

5.) Mr Johnson shall, within one (1) year of the effective date of this Stipulated Agreement, successfully complete a NAWT Designer Course, and submit proof of completion to the State Board within sixty (60) days of completion of the course.

6.) Mr Johnson shall pay the client restitution in the amount of $15,816.40 pursuant to NRS 625.460(1)(e), within ninety (90) days of acceptance and execution of this Agreement by the State Board.

LAST PROBATION REPORTS DUE August 15, 2025

PROBATION REPORT
(MUST BE TYPED)

Print Form

PROBATIONER: Mark Johnson, P.E.
PE/PLS #: 019830

EMPLOYER: Stanka Consulting LTD

PROBATION REPORT SUMITTED FOR THE PERIOD OF: 1/27/2024 THROUGH: Mar 26, 2024

CLIENT:

NAME: Dale and Leah Lamborn

ADDRESS: 4349 Stampede Drive

CITY: Carson City STATE: NV ZIP CODE: 89701

PROJECT:

NAME: Site Plan for single residential home

LOCATION OF PROJECT: 4450 Northview Drive

CITY: Carson City STATE: NV ZIP CODE: 89701

SIZE: 0.90 START DATE: Nov 27, 2023 END DATE: Jan 26, 2024

STATUS OF PROJECT: Ongoing

FEE PAID BY CLIENT: $97.50

SCOPE OF WORK:

Site design of a single residential home in Carson City.

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

I worked with the project engineer in the site design. The project engineer has since left the office. This work only involved forwarding CAD drawings to the client's geotechnical engineer for retaining wall design.

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

The scope of this project did not include any work for which I am on probation.

SIGNATURE: Mark Johnson
Digitally signed by Mark Johnson
DN: cn=Mark Johnson, o=Stanka Consulting LTD, ou=Engineering, email=markj@stankaconsulting.com, c=US
Date: 2024.04.13 11:28:27 -06'00'

DATE: April 13, 2024

(Please print, sign, date, then scan and email report to board@boe.state.nv.us)

PROBATION REPORT
(MUST BE TYPED)

Print Form

PROBATIONER: Mark Johnson, P.E. PE/PLS #: 019830

EMPLOYER: Stanka Consulting LTD

PROBATION REPORT SUMITTED FOR THE PERIOD OF: 1/27/2024 THROUGH: Mar 26, 2024

CLIENT:

NAME: Peter M Beekhof Jr

ADDRESS: 1456 Industrial Way

CITY: Gardnerville STATE: NV ZIP CODE: 89410

PROJECT:

NAME: Carson Valley RV Storage

LOCATION OF PROJECT: 1716 Timber Ct

CITY: Gardnerville STATE: NV ZIP CODE: 89410

SIZE: 1.92 START DATE: Nov 27, 2023 END DATE: Jan 26, 2024

STATUS OF PROJECT: Ongoing

FEE PAID BY CLIENT: $390.00

SCOPE OF WORK:

Construction is ongoing on the project. My scope at this point is answering constructability questions from the client (who is also the contractor) and review of possible changes to design and construction.

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

I have been the civil project engineer for the project since the engineer originally in charge of the project left our office. I have been working closely with Douglas County and the client/contractor to ensure the product is constructed according to standards and delivered in a timely manner.

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

The scope of this project did not include any work for which I am on probation.

SIGNATURE: Mark Johnson Digitally signed by Mark Johnson DATE: April 13, 2024

(Please print, sign, date, then scan and email report to board@boe.state.nv.us)

PROBATION REPORT
(MUST BE TYPED)

Print Form

PROBATIONER: Mark Johnson, P.E. PE/PLS #: 019830

EMPLOYER: Stanka Consulting LTD

PROBATION REPORT SUMITTED FOR THE PERIOD OF: Jan 27, 2024 THROUGH: Mar 26, 2024

CLIENT:

NAME: Carson Luxury Housing LLC

ADDRESS: 2655 Peavine Creek Rd

CITY: Reno STATE: NV ZIP CODE: 89523

PROJECT:

NAME: Stafford Way Apartments

LOCATION OF PROJECT: 515, 535, 545 Stafford Way

CITY: Carson City STATE: NV ZIP CODE: 89701

SIZE: 0.626 START DATE: Jan 27, 2024 END DATE: Mar 26, 2024

STATUS OF PROJECT: Ongoing

FEE PAID BY CLIENT: $325.00

SCOPE OF WORK:

The project involves the construction of three, four-unit apartment buildings and appurtenant utilities, site work, etc. Our office has prepared the civil plans.

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

I have been the civil project engineer since the original engineer on this project left our office. I have updated the civil plans based on Carson City comments and in coordination with the client. Further coordination with the fire sprinkler design company has led me to revise the civil plans to show the updated fire sprinkler line layout. The revisions have been submitted to Carson City.

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

The scope of this project did not include any work for which I am on probation.

SIGNATURE: Mark Johnson Digitally signed by Mark Johnson DATE: April 13, 2024

(Please print, sign, date, then scan and email report to board@boe.state.nv.us)

PROBATION REPORT
(MUST BE TYPED)

Print Form

PROBATIONER: Mark Johnson, P.E. PE/PLS #: 019830

EMPLOYER: Stanka Consulting LTD

PROBATION REPORT SUMITTED FOR THE PERIOD OF: 1/27/2024 THROUGH: Mar 26, 2024

CLIENT:

NAME: Peter M Beekhof Jr

ADDRESS: 1456 Industrial Way

CITY: Gardnerville STATE: NV ZIP CODE: 89410

PROJECT:

NAME: Lily Court Tentative Subdivision Map application

LOCATION OF PROJECT: 3282 Plymouth Drive

CITY: Minden STATE: NV ZIP CODE: 89423

SIZE: 7.59 START DATE: Nov 27, 2023 END DATE: Jan 26, 2024

STATUS OF PROJECT: Ongoing

FEE PAID BY CLIENT: $2,925.00

SCOPE OF WORK:

Preparation of Tentative Subdivision Map package for submittal to Douglas County

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

I am the project engineer for the project. I am tasked with design and all entitlement approvals from Douglas County. This project was previously approved but because of delays in construction, the approval had expired. This work is technically a re-submittal (with updates) of the previous work.

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

The scope of this project did not include any work for which I am on probation.

SIGNATURE: Mark Johnson
Digitally signed by Mark Johnson
DN cn=Mark Johnson o=Stanka Consulting LTD ou=Engineering
email=mark@stankaconsulting.com c=US
Date 2024 04 13 11 18 02 06'00'

DATE: April 13, 2024

(Please print, sign, date, then scan and email report to board@boe.state.nv.us)

Buckley Blew, PLS 024520
Case Number: 20230004
Violation of NRS 625.410 (2), 625.340, NRS 625.350(2)(a); and NRS 329.140(1).

Mr Blew self-reported a disciplinary action imposed against his California professional land surveyor license by the California Board of Professional Engineers, Land Surveyors, and Geologists (the “California Board”) in his license renewal application.

CALIFORNIA BOARD DISCIPLINARY ACTION

The California Board action against Mr Blew was based on the following:

A) California Business and Professions Code (“Code”) § 8780(d) and § 8762(b)(4) and (c) for failing to file a record of survey within ninety (90) days of his survey of the following properties:

- 555 and 575 Market Street, San Francisco
- 1281 W. National Drive, Sacramento
- 1520 and 1620 W. National Drive, Sacramento
- 1534 N. Market Blvd. and 4201 Sierra Point Drive, Sacramento
- 1700 W. National Drive, Sacramento
- 3200-3298 Orange Grove Avenue, Sacramento
- 1401 Civic Court, Concord

B) Under Code § 8780(b) for negligence in the practice of land surveying, in that Mr Blew did not meet the standard of care for a licensed land surveying when he failed to file a record of survey for the aforementioned properties. In addition, for the properties located at 1520 and 1620 W. National Drive, Sacramento, at 1534 N. Market Blvd. and 4201 Sierra Point Drive, Sacramento, and at 1700 W. National Drive, Sacramento, Mr Blew was disciplined under Code § 8780(b) for negligence in the practice of land surveying, in that Mr Blew did not meet the standard of care for a licensed land surveying when he failed to set monuments.

C) Under Code § 8780(d) and § 8765(d) for failing to file a corner record for 8845 Washington Blvd., Roseville. In addition, Mr Blew was disciplined under Code § 8780(b) in that he was negligent in his practice of land surveying regarding 8845 Washington Blvd., Roseville.

D) Under Code § 8780(b) in that he was negligent and/or incompetent in the practice of land surveying in that the establishment of boundaries shown on Mr Blew’s ALTA/NSPS maps indicated a practice of using a minimum of unreferenced control points and using “record” information from a single direction to establish boundary lines. This practice is reasonably foreseeable to lead to gaps and overlaps in boundaries.

Based on the above Mr Blew stipulated with the California Board to the following violations: (1) failure to file a timely record of survey; (2) negligence in the practice of land surveying; (3) failure to file a corner report; and (4) incompetence in the practice of land surveying. Pursuant to the California Board Stipulation and Order, Mr Blew's license was revoked, but the revocation was stayed pending the successful completion of three (3) years probation, reimbursement of investigative costs in the amount of Twelve Thousand Six Hundred Thirteen and 75/100 Dollars ($12,613.75), completion and passage of the California Laws and Board Rules examination, passage of a Board approved ethics course within one (1) year, and completion and passage of two (2) college-level Board approved land surveying courses.

NEVADA BOARD DISCIPLINARY ACTION

NRS 625.410 states that the Nevada State Board may take disciplinary action against a licensee for discipline by another state or territory if at least one of the grounds for discipline is the same or substantially equivalent to any ground under Nevada law.

The State Board does not have statutory authority to take disciplinary action against licensees for mere negligence. Thus, Mr Blew's cause for discipline due to his negligence does not constitute a violation of NRS 625.410(6).

Mr Blew's cause for discipline for failure to file a timely record of survey, however, is substantially equivalent to NRS 625.340, in which professional land surveyors shall "within 90 day after the establishment of points or lines, file . . . a record of survey relating to land boundaries and property lines." In addition, NRS 625.350 states that a record of survey must show, among other things, "[a]ll monuments found, set, reset, or replaced, describing their kind, size and location and giving other data relating thereto." NRS 625.350(2)(a).

Mr Blew was also disciplined for failing to file a corner record. This cause for discipline is substantially equivalent NRS 329.140, in which a "a surveyor shall complete, sign and record or cause to be recorded . . . a written record of the establishment or restoration or a corner The survey information must be recorded within 90 days after the survey is completed." NRS 329.140(1).

Finally, Mr Blew was disciplined for negligence and/or incompetence. NRS 625.410 states that the Board may take disciplinary action against a licensee for "[a]ny gross negligence, incompetency or misconduct in the practice of professional engineering as a professional engineer or in the practice of land surveying as a professional land surveyor." NRS 625.410(2).

Thus, since at least one of the grounds for discipline in California is substantially similar to a ground for discipline in Nevada, the State Board may take disciplinary action against Mr Blew.

NRS 625.410 states that the State Board may take disciplinary action against a licensee for discipline by another state or territory if at least one of the grounds for discipline is the same or substantially equivalent to any ground under Nevada law.

Pursuant to NAC 625.640(3)(b)(2), a disciplinary matter against a licensee may be resolved without a formal hearing by Stipulated Agreement. As such, Mr Blew and the State Board hereby stipulate to the following terms for the above-referenced violation(s):

1. Mr Blew's license shall be revoked following entry of this Agreement, but with revocation stayed and probation imposed for a term of three (3) years.

2. The licensee shall submit detailed bi-monthly probation reports to the Executive Director of the State Board, which shall report any work completed in Nevada during the previous two (2) month period. A report shall be filed even if no work was performed in Nevada during the previous two (2) month period. The first report shall be due within two (2) months of the effective date of this Stipulated Agreement. Each report shall include a copy of the contract executed for any work in Nevada, including the scope of work detail.

3. Mr Blew shall provide the State Board with proof of fulfilling the California Stipulated Agreement obligations.

LAST PROBATION REPORTS DUE August 15, 2026

PROBATION REPORT
(MUST BE TYPED)

Print Form

PROBATIONER: Buckley Blew PE/PLS #: 024520

EMPLOYER: Blew & Associates, P.A.

PROBATION REPORT SUMITTED FOR THE PERIOD OF: Jan 20 THROUGH: Mar 19

CLIENT:

NAME: NA

ADDRESS: NA

CITY: NA STATE: NA ZIP CODE: NA

PROJECT:

NAME: NA

LOCATION OF PROJECT: NA

CITY: NA STATE: NA ZIP CODE: NA

SIZE: NA START DATE: NA END DATE: NA

STATUS OF PROJECT: NA

FEE PAID BY CLIENT: NA

SCOPE OF WORK:

NA

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

NA

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

NA

SIGNATURE: DATE: 3/27/24

(Please print, sign, date, then scan and email report to board@boe.state.nv.us)

Andrew Hammond, PE/PLS 021191
Case Number: 20220009
Violation of NRS 625.410 (2), and 625.530 (1)(5).

In or around January 2019, the complainant (client) reached out to Element Engineering (Mr Hamond's firm) via Yelp in search of a professional to help adapt and engineer house plans that had been found online. Mr Hammond replied to the inquiry via Yelp and indicated he could complete the house plans in about four (4) to five (5) weeks.

The client engaged Mr Hammond for the project in late 2019. The project included various tasks, such as surveying, site plan, grading plan, septic, structural design and calculations, and electrical plan. At the end of December 2019, the client made a 50% down payment on the house plans for the initial survey and topography. In late 2019, Mr Hammond recommended a lot merger and was retained in or around July 2020 to perform that service. Throughout his engagement with the client, Mr Hammond communicated timelines and completion dates, but failed to meet these communicated deadlines. Mr Hammond did not make the initial submission for permits until August 22, 2021. Washoe County rejected this initial submittal as incomplete with requirements noted. Mr Hammond then had to resubmit the project three (3) more times due to further comments from Washoe County. By the time the client submitted the Complaint, Mr Hammond still had not obtained the permits for his plans. Regarding the lot merger, Mr Hammond erroneously submitted a Boundary Line Adjustment (BLA) to Washoe County in February 2021. Washoe County rejected this BLA and advised Mr Hammond that a Reversion to Acreage (RTA) map was required. In March 2021, Mr Hammond submitted an RTA, but did not make a payment to Washoe County for RTA review. In May 2021, Washoe County emailed Mr Hammond regarding RTA submittal errors and payment for review of the RTA. In June 2021, Washoe County sent an example RTA map for reference and information for Mr Hammond to correct his March 2021 submittal. In July 2021, Mr Hammond submitted payment for RTA application and review. In August 2022, Washoe County approved the RTA map for recording after correcting errors that Mr Hammond made on the RTA map, such as including unneeded signature lines for utility companies that did not serve the client's property. On or about January 10, 2023, Mr Hammond refunded the Seven Thousand and No/100 Dollars ($7,000.00) that the client paid Mr Hammond for services.

VIOLATIONS and DISCIPLINARY ACTION

Pursuant to NAC 625.530(1), a professional engineer or land surveyor shall "[a]ct in professional matters as a faithful agent or trustee for each employer or client." Here, Mr Hammond failed to act as a faithful agent. Over thirty (30) months have passed from the start of work, but no permit had been issued at the time the Complaint was filed. Mr Hammond promised the client completion deadlines, but continually missed them. Mr Hammond had never done an RTA map and admits that the timeline to complete it was unreasonable.

Pursuant to NAC 625.530(5), a professional engineer or land surveyor shall "[u]ndertake only those engineering or land surveying assignments for which he or she is qualified and engage or advise the employer or client to engage specialists and cooperate with them whenever the employer's or client's interests are served best by such an arrangement." Here, Mr Hammond erroneously submitted a boundary line adjustment rather than a reversion to acreage map. The time taken and the assistance required by the Washoe County staff indicates Mr Hammond's underqualification for the assignment undertaken. Relating to the engineering, his submissions for permitting required extra comments and review from Washoe County. Mr Hammond submitted his plans four (4) times over the course of one (1) year.

Based on the foregoing, Mr Hammond stipulates that he violated NRS 625.410(2) and NAC 625.530(1) by failing to meet deadlines he promised his client and, thus, prolonging the project. In addition, Mr Hammond stipulates that he violated NAC 625.530(5) by undertaking a project for which he was unqualified, and not seeking to engage specialists to assist.

NRS 625.410(5) provides authority for the State Board to administer discipline in Nevada for a violation of any NRS Chapter 625 statute and/or any regulation adopted by the State Board. Further, pursuant to NAC 625.640, a disciplinary matter may be resolved without a formal hearing by a Stipulated Agreement.

To that end, to resolve Complaint Number 20220009 now pending, Mr Hammond and the State Board resolve this matter on the following basis:

1.) Mr Hammond's Nevada license shall be suspended for twenty-four (24) months following entry of this Agreement, but with the suspension stayed and probation imposed for the duration of that time period.

a.) On a bi-monthly basis, Mr Hammond shall submit, to the State Board, a probation report to include any copies of executed contracts for any project or client that Mr Hammond retains during the period of his probation.

b.) Mr Hammond has reimbursed the complainant a total amount of Seven Thousand and No/100 Dollars ($7,000.00) for design and mapping fees paid to Mr Hammond (One Thousand Nine Hundred Fifty and No/100 ($1,950.00) for mapping and Five Thousand Fifty and No/100 Dollars ($5,050.00) for house design), which is satisfactory in lieu of an administrative fine.

c.) Mr Hammond shall pay legal and investigative costs to the State Board a total of One Thousand Seven Hundred and No/100 Dollars ($1,700.00) within ninety (90) days of acceptance and execution of this Agreement by the State Board.

d.) Within ninety (90) days of acceptance and execution of this Agreement by the State Board, Mr Hammond shall have any land surveying services that he has performed since November 1, 2022, reviewed by a licensed Nevada Professional Land Surveyor selected by the State Board. Further, any additional land surveying services that Mr Hammond performs in Nevada through the end of the term of his probation hereunder, shall be reviewed by a licensed Nevada Professional Land Surveyor selected by the State Board. The selected Professional Land Surveyor shall be independent of, and have no conflict of interest with, Mr Hammond, and will provide the State Board an assessment of competency for every professional land surveyor project done by Mr Hammond during the above-designated time period. Mr Hammond shall bear the cost and expense of the selected Professional Land Surveyor's services.

LAST PROBATION REPORTS DUE February 1, 2026

PROBATION REPORT
(MUST BE TYPED)

PROBATIONER: ANDREW HAMMOND PE/PLS #: 21191

EMPLOYER: ELEMENT ENGINEERING

PROBATION REPORT SUMITTED FOR THE PERIOD OF: Jan 25, 2024 THROUGH: Mar 24, 2024

CLIENT:

NAME: NO WORK IN NV

ADDRESS:

CITY: STATE: ZIP CODE:

PROJECT:

NAME:

LOCATION OF PROJECT:

CITY: STATE: ZIP CODE:

SIZE: START DATE: END DATE:

STATUS OF PROJECT:

FEE PAID BY CLIENT:

SCOPE OF WORK:

DESCRIBE IN DETAIL YOUR INVOLVEMENT IN THIS PROJECT AND HOW YOU HANDLED THIS PROJECT.

DESCRIBE IN DETAIL HOW YOU IMPROVED ON THIS PROJECT IN THE AREAS FOR WHICH YOU ARE ON PROBATION.

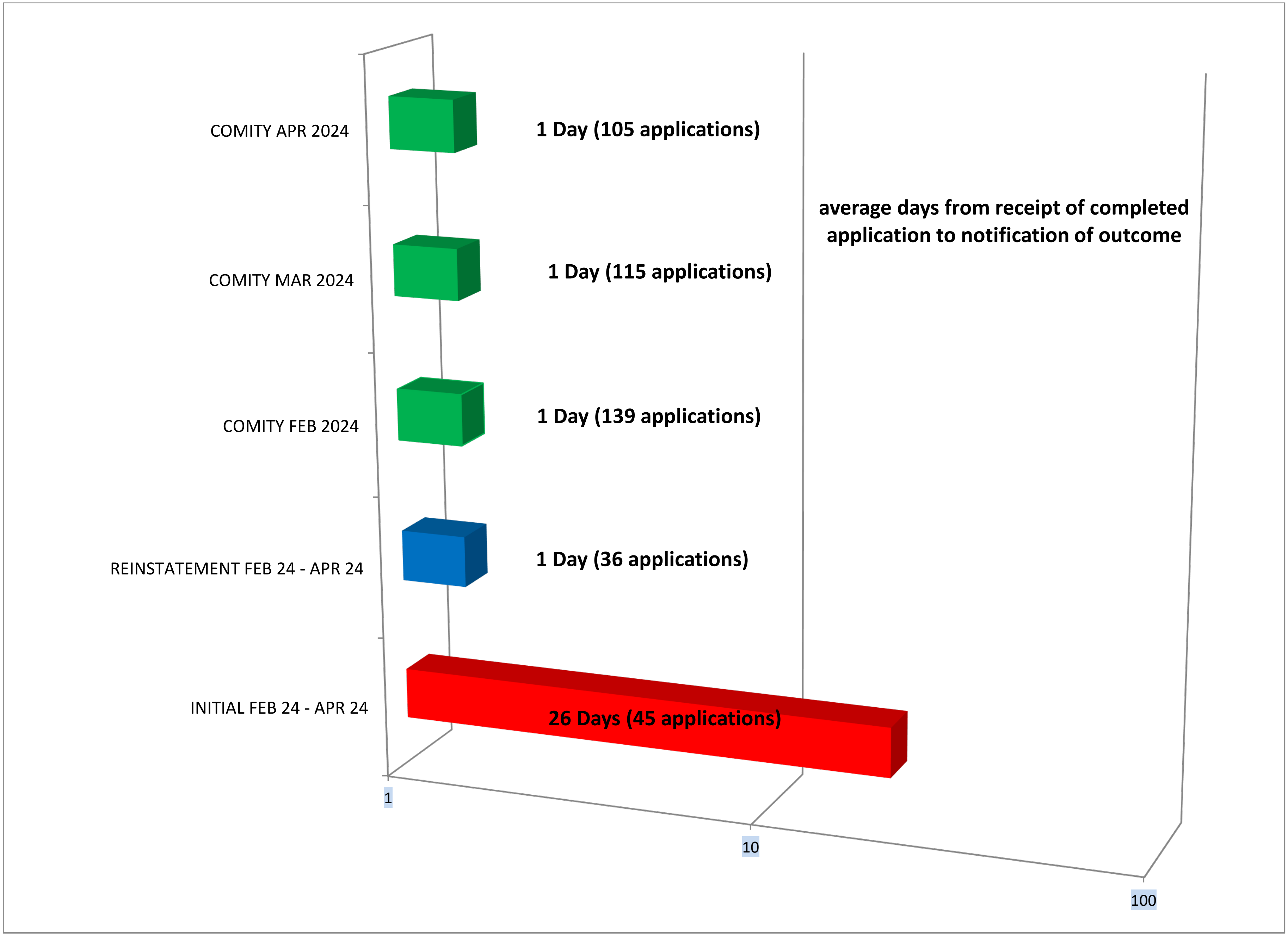
SIGNATURE: DATE: 4/18/24

(Please print, sign, date, then scan and email report to board@boe.state.nv.us)

11. Board Counsel Report

12. Administrative Report

12.a. Approved Licensees Report


COMITY APR 2024
1 Day (105 applications)
average days from receipt of completed application to notification of outcome
COMITY MAR 2024
1 Day (115 applications)
COMITY FEB 2024
1 Day (139 applications)
REINSTATEMENT FEB 24 - APR 24
1 Day (36 applications)
INITIAL FEB 24 - APR 24
26 Days (45 applications)
1
10
100

12.b. 2021-2025 Strategic Plan

NEVADA BOARD OF PROFESSIONAL
ENGINEERS
&
LAND SURVEYORS

STRATEGIC PLAN UPDATE
Executive Summary
Approved November 12, 2020

UPDATED Fall 2020

EXECUTIVE SUMMARY

STRATEGIC PLAN UPDATE ~ SEPTEMBER 11, 2020

The Nevada Board of Professional Engineers and Land Surveyorsdeveloped a comprehensive Strategic Plan in March 2017. The plan was created using a 10-30 year planning horizon based on the boards's core ideology consisting of a core purpose and core values.

Because the Strategic Plan had been developed in 2017, the board felt it was timely to reconsider its contents. The Board met September 11, 2020 to comprehensively review its Strategic Plan and consider any needed updates to that plan.

At the September 11, 2020 Strategic Planning Session, the board reaffirmed that the goals developed in the current Strategic Plan based on a 10-30 year planning horizon were still relevant. The session then focused on review and refresh of strategies. It was agreed that tactics and action items would be driven by the strategies and developed by the board and its committees at future meetings.

This document restates the board's goals for its updated Strategic Plan and captures the board's strategies for the next 3-5 year planning horizon.

EXECUTIVE SUMMARY
PURPOSE ~ MISSION ~ CORE VALUES

Purpose

The purpose of the board, as stated in Nevada Revised Statute 625.005, is to safeguard life, health and property and to promote the public welfare by providing for the licensure of qualified and competent professional engineers and professional land surveyors.

Mission

Founded on the board's purpose, the board's mission is to uphold the value of professional engineering and land surveying licensure by assessing minimum competency for initial entry into the profession, and to ensure ongoing standard of professionalism by facilitating compliance with laws, regulations, and code of practice; and to provide understanding and progression in licensure by openly engaging with all stakeholders.

Core Values

The board's core values are:

Integrity

Transparency

The core values were identified by board members and staff during the strategic planning sessions as guiding principles in the performance of their duties. A commitment was made to deliver on these values and provide governance that is ethical, honest, and consistent, and to function on a daily basis with accessibility and openness that is without obstruction.

3-5 Year Planning Horizon

~ Outcome-Focused Goals and Strategies ~

The following thinking represents the organization's goals for the next 3-5 years. These **Goals** are outcome-oriented statements that represent what will constitute the Nevada board's future success. The achievement of each goal will move the organization towards the realization of its Envisioned Future. The **Strategies** reflect the broad range of direction that will be undertaken to change the existing conditions in order to achieve the goal – they drive **Tactics** -- the type of work and initiatives that will need to be undertaken to achieve the goal.

Strategies considered at the the September 11, 2020 strategic planning session discussion were presented for board consideration November 12, 2020. New or updated strategies are in bold text.

Outcome-Focused Goals

1. Outreach

The general public, prospective licensees and other key stakeholders have a greater understanding that engineering and surveying licensure are essential to safeguarding public health, safety and welfare.

2. Licensure

The demonstrated value of licensure results in continued growth in the number, quality and diversity of licensed engineers and surveyors practicing in Nevada.

3. Regulation

Nevada regulations are compatible with and reflective of the current state of practice in engineering and surveying and are in alignment with Nevada's economic development strategy.

4. Operational Excellence

The Nevada Board's efficient and effective use of technology and streamlined systems, processes and procedures result in high levels of satisfaction by all stakeholders.

Goal 1: Outreach

The general public, prospective licensees and other key stakeholders have a greater understanding that engineering and surveying licensure are essential to safeguarding public health, safety and welfare.

Strategies

1. Increase legislators understanding of criticality of services provided by the board and professional engineers/professional land surveyors
2. **Evolve technical capability and expand social media presence**
3. Increase visibility of the Board
4. **Sustain appropriate allocation of resources for effective content development**

Goal 2: Licensure

The demonstrated value of licensure results in continued growth in the number, quality and diversity of licensed engineers and surveyors practicing in Nevada

Strategies

1. Increase/stress the importance of licensure to university level students
2. Increase the public's knowledge about the value of licensure
3. Increase kids' knowledge of what engineers/land surveyors do
4. **Continuously work to improve the process and portability of licenses**
5. Provide options to meet land surveyor educational requirements
6. **Increase knowledge of the quality of experience required for licensure to potential licensees**

7. **Maintain relevancy of engineering licensure, specifically as it relates to emerging technologies**

Goal 3: Regulation

Nevada regulations are compatible with and reflective of the current state of practice in engineering and surveying and are in alignment with Nevada's economic development strategy.

Strategies

1. **Maintain currency and applicability of statutes and regulations**

2. Increase relationships with key stakeholders

3. **Increase awareness of new/emerging technologies in relation to statutes and regulations**

Goal 4: Operational Excellence

The Nevada Board's efficient and effective use of technology and streamlined systems, processes and procedures result in high levels of satisfaction by all stakeholders.

Strategies

1. **Maintain effective staff capacity**

2. **Maintain business plan for resource allocation to support board goals**

3. **Maintain effective office and administrative processes**

4. Build a data collection strategy to ensure we have data needed for effective decision making

5. **Increase transparency and communication with stakeholders of board functions, operations, and initiatives**

12.c. NCEES

12.c.i. United Kingdom Mutual Recognition Agreement Signing Ceremony

Memorandum

April 25, 2024

To: Board Members
From: Patty Mamola, Board Staff
Subject: NCEES Mutual Recognition Agreement with Engineering Council United Kingdom

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Background

NCEES is a signatory to the mobility agreements of the International Engineering Alliance—APEC Engineer Agreement and International Professional Engineer Agreement. Patty Mamola, board staff, has served on the governing group of the International Engineering Alliance, as a representative of NCEES, since 2013, currently serving as Deputy Chair.

In 2021, in support of Governor Sandoval's initiatives to diversify Nevada's economy, NVBPELS adopted changes to Nevada Administrative Code 625.240, Licensure on basis of previous licensure in another jurisdiction, to accept endorsement/comity applicants from non-US jurisdictions that are signatory to the mobility agreements of the International Engineering Alliance. Nevada was the first state in the US to enact this pathway to endorsement/comity licensure.

In response to increasing interest from government bodies, employers, and professional associations, there has been a concerted effort to explore the feasibility of mutual recognition of professional qualifications between the United Kingdom and the United States. This intention was articulated by the UK Prime Minister's opening remarks in the Atlantic Declaration at the White House on June 8, 2023: *"An agreement to work towards mutual recognition of more professional qualifications in areas like engineering…"* Beginning in June 2023, NCEES began working with the Engineering Council to develop a mutual recognition agreement (MRA) to facilitate this objective.

The NCEES/ECUK MRA builds on the foundation laid by both organizations as founding members of the International Engineering Alliance and the International Professional Engineers Agreement (IPEA). NCEES is encouraging its members, US states, to support the MRA and to actively work to change licensing processes, regulations, and if needed, statutes, to enable comity licensure via the NCEES/ECUK MRA and ultimately enable comity licensure for professionals that are designated as APEC Engineer or International Professional Engineer by jurisdictions that are signatory to the mobility agreements of the International Engineering Alliance.

Discussion

A ceremonial signing for the NCEES/ECUK Mutual Recognition Agreement will take place Tuesday, August 13, 2024, during the NCEES annual meeting in Chicago. This will be a celebratory event to include official photos for those boards that express an interest in pursuing participation in the MRA.

As Nevada has been the leader in creating a pathway to licensure via the mobility agreements of the International Engineering Alliance, NVBPELS should whole-heartedly support NCEES's efforts and actively engage in NCEES's celebratory event.

Proposed Action

Staff encourages all Nevada board members and staff that are planning to attend the NCEES annual meeting to attend and observe the signing ceremony. Staff also recommend the board chair and Patty Mamola be designated as Nevada's two official participants of the MRA signing ceremony.

Attachments: Email from David Cox re: UK MRA Ceremonial Signing
Understanding the Mutual Recognition Agreement
Mutual Recognition Agreement

From: David Cox
To: Patty L. Mamola
Subject: UK MRA Ceremonial Signing
Date: Thursday, April 11, 2024 11:26:41 AM

A ceremonial signing for the UK Mutual Recognition Agreement (MRA) will take place Tuesday, August 13, during the NCEES annual meeting in Chicago. This will be a celebratory event to include official photos for those boards that express an interest in pursuing participation in the MRA. It is not required that the board be ready to participate by the time of the event.

To help us plan, please click here to provide information for your board as soon as possible, but no later than June 1. Boards that plan to participate in the ceremonial signing are limited to two official participants. There is no limit to the number of observers from each board.

All annual meeting attendees are encouraged to attend this event. Please share this information with your board members. As you begin making your travel arrangements, please make sure participants and observers plan to arrive at the hotel on Tuesday, August 13, in time for the ceremonial signing at 5:00 p.m.

Additional information will be provided to participants as we get closer to the event.

I look forward to seeing you all there.

David

Understanding the Mutual Recognition Agreement

Between NCEES and the U.K. Engineering Council

April 2024

Executive Summary

In response to increasing interest from government bodies, employers, and professional associations, there has been a concerted effort to explore the feasibility of mutual recognition of professional qualifications between the United Kingdom and the United States. This intention was articulated by the U.K. Prime Minister's opening remarks in the Atlantic Declaration at the White House on June 8, 2023: *"An agreement to work towards mutual recognition of more professional qualifications in areas like engineering..."*

Beginning in June 2023, the National Council of Examiners for Engineering and Surveying (NCEES) began working with the Engineering Council (EngC) to develop a mutual recognition agreement (MRA) to facilitate this objective. EngC, established by Royal Charter, governs the engineering profession in the United Kingdom, setting and upholding internationally recognized standards of professional competence and dedication for the public benefit.

The core objective of this agreement is to optimize mobility for Chartered Engineers (CEngs) in the United Kingdom and Professional Engineers (P.E.s) in the United States. By simplifying administrative procedures, eliminating redundant assessments, and seeking cost-efficient approaches, the aim is to facilitate seamless movement for professionals between our jurisdictions. Such an agreement is beneficial to safeguarding the public health, safety, and welfare for both nations by having individuals licensed in the proper jurisdictions. This mutual recognition also fosters increased opportunities for individuals and businesses, promoting trade, knowledge exchange, and collaboration while addressing skills shortages in critical sectors.

The MRA builds on the foundation laid by both organizations as founding members of the International Engineering Alliance (IEA) and the International Professional Engineers Agreement (IPEA). The IPEA has an agreed-upon set of professional competencies that individuals must meet to be on a member country's section of the International Professional Engineers Register. The means for assessing the competencies may vary from country to country, but in the end, all individuals on a register possess the established professional competencies. For example, the United States uses the Principles and Practice of Engineering (PE) exam to assess, while the United Kingdom uses a structured process involving experience reviews and an oral examination.

In summary, P.E.s on the NCEES international register will qualify for licensure as a CEng in the United Kingdom. CEngs on the EngC international register will qualify for licensure as a P.E. in a U.S. jurisdiction that participates in the MRA. Someone on the U.K. register is substantially equivalent to someone on the U.S. register and vice versa. This reciprocal recognition streamlines the licensure process, bypassing redundant traditional requirements on both sides, though local jurisdictional or discipline-specific criteria may still apply.

Given the decentralized nature of engineering licensure in the United States, each NCEES engineering member board must independently decide on participation in the MRA. NCEES stands ready to assist with information and guidance, facilitating any necessary legislative or regulatory adjustments. Moreover, British Consulates are available to provide support to interested boards throughout the process. Like the old saying "if there is a will, there is a way," if a member board has the will, we can show the way.

Timeline of the MRA

April 2023

- CEO David Cox attends formal signing of an MRA between the National Council of Architectural Registration Boards (NCARB) and the United Kingdom at the invitation of the British Embassy. He is informed by the British Ambassador to the United States that the U.K. Prime Minister will be discussing the desire for a similar agreement with engineers in June during his visit to the United States.

- CEO Cox informs the NCEES board of directors (BOD) and is directed to proceed with preliminary discussions.

June 2023

- The U.K. Prime Minister makes remarks in the Atlantic Declaration at the White House, expressing his desire for an engineering agreement.

- CEO Cox begins initial conversations with EngC in Taiwan at an IEA meeting. An initial framework for an MRA is developed.

August 2023

- NCEES BOD is updated on June work.

- British Consulate representatives address the Council and the Member Board Administrator Forum at the NCEES annual meeting in Boston.

October 2023

- Initial draft is completed and presented to boards of directors for NCEES and EngC. The boards provide feedback.

November 2023

- Second draft is completed and distributed to NCEES BOD, and feedback is received.

December 2023

- Third draft is completed and distributed to NCEES BOD in preparation for London visit.

February 2024

- The British invite a delegation of 11 member boards to London to discuss the draft MRA, meet with government officials, review the U.K. processes with EngC, etc., and provide feedback.

- Final draft is completed and approved by NCEES BOD.

March 28, 2024

- Final draft is approved by EngC BOD.

MRA

The draft MRA is attached as Appendix A. The following are highlights:

- P.E.s on the NCEES international register will qualify for licensure in the United Kingdom as a CEng. CEngs on the EngC international register will qualify for licensure as a P.E. in a U.S. jurisdiction that participates in the MRA. Someone on the U.K. register is substantially equivalent to someone on the U.S. register and vice versa.
- An applicant qualifying under the MRA will not have to meet overarching traditional requirements, such as a CEng being required to take the Fundamentals of Engineering (FE) and PE exams, or a P.E. undergoing the stringent experience review/mapping to competencies and the oral exam. However, applicants still may need to meet local jurisdictional or discipline-specific requirements.
- The parties will cooperate with each other regarding disciplinary and enforcement issues related to individuals licensed or applying under the MRA.
- The MRA does not preclude the need to conform to applicable immigration and visa requirements.
- The parties will provide an annual report to each other on the applicants who have applied under the terms of the MRA.
- The parties will review and update the MRA at least every five years based on their experiences.

IEA/IPEA Basics

EngC and NCEES both became founding members of the IEA and the IPEA in 1997. Participation by NCEES was approved by the Council prior to that signing. The IEA has engineering-related accords and agreements. The accords cover education, and the agreements deal with licensure. In the United States, ABET is the member of accords, and NCEES is the member of agreements. In many countries, including the United Kingdom, one entity covers both.

The IEA is a global organization comprised of members from 41 jurisdictions within 29 countries, across seven international agreements. These international agreements govern the recognition of engineering educational qualifications and professional competence. Through the educational accords and competence agreements, members of the IEA establish internationally bench-marked standards for engineering education and expected competence for engineering practice.

A professionally competent person has the attributes necessary to perform the activities within the profession to the standards expected in independent employment or practice. The professional competence profile records the elements of competence necessary for performance that the professional is expected to be able to demonstrate at the stage of attaining licensure. Professional competence can be described using an agreed-upon set of attributes.

Each member maintains an international register of individuals who meet these agreed-upon professional competencies and other requirements of the IPEA, including a minimum of seven years of experience, proof of continuing education, and no disciplinary actions. Each member is audited every six years to ensure compliance with the agreement.

To be placed on the NCEES international register, an individual must have an NCEES Record and be a Model Law Engineer, which requires an engineering degree from a program accredited by the Engineering Accreditation Commission of ABET (EAC/ABET), passage of the FE and PE exams, at least four years of experience, and no disciplinary actions. That individual then goes through further evaluation to ensure seven years of experience and a record of continuing education. The only exception is that those without an EAC/ABET-accredited engineering degree can still be on the international register if they have a degree from a Washington Accord program. Our PE exam is the assessment tool used to determine that an individual has met the agreed-upon competencies. NCEES has mapped each PE exam specification and related materials against the IPEA competencies to make sure there are no gaps.

EngC also has a detailed process for placing a CEng on their register. Again, those individuals must have at least seven years of experience, proof of continuing education, and no disciplinary actions. The educational requirement is basically our equivalent of an engineering master's degree. They assess meeting of the competencies through evaluating everyone's experience record to map actual work to each of the competencies and then conducting an oral exam (like a thesis defense). During that interview, the applicant orally connects different parts of the experience record to each competency. On average, an applicant obtains approximately 10 years of experience to meet all the competencies.

Individuals on both registers have been assessed and determined to possess the competencies required under the IPEA. Therefore, individuals on both registers are determined to be substantially equivalent, and the processes in making that determination are substantially equivalent and are subject to audit under the IPEA terms. Both NCEES and EngC are just completing their six-year audit and have received preliminary notice of passage.

Next Steps

NCEES and EngC still must work out logistics, such as U.K. applicants obtaining an NCEES Record so that we can transmit all their information to any member board to which they apply, and the equivalent for U.S. applicants going to the United Kingdom. We will also need to establish fees that we both intend to be reasonable and approximately the same in the United States and United Kingdom. Any individual state or jurisdictional fees will still apply, as with any candidate.

Since engineering licensure decisions are made at the state level in the United States, each individual NCEES engineering member board must decide whether to participate in the MRA. NCEES encourages member boards to participate and can assist with additional information and help in the determination of any law or rules changes that may be necessary. Many boards have flexible language that would allow them to participate without any changes. If you have the will, NCEES and the British Consulates will assist in helping you with the way.

We are planning a ceremonial signing for interested member boards at the British Consulate in Chicago during the NCEES annual meeting in August. All a member board needs to do to take part is express an interest in pursuing participation in the MRA. It is not required that the member board be ready to participate at that time. Some boards may need law or rule changes and other meetings and process changes that will take time to complete. There is no time requirement imposed on member boards' participation.

Appendices

A. Mutual Recognition Agreement
B. IEA Graduate Attributes and Professional Competencies
C. Delegation of U.S. Engineering State Board Members
D. EngC Introduction
E. U.K. Standard for Professional Engineering Competence and Commitment
F. EngC Disciplinary Procedure Guidance

APPENDIX A

MUTUAL RECOGNITION AGREEMENT

BETWEEN THE NATIONAL COUNCIL OF EXAMINERS FOR ENGINEERING AND SURVEYING (USA) AND THE ENGINEERING COUNCIL (UK)

MUTUAL RECOGNITION AGREEMENT

Between

The National Council of Examiners for Engineering and Surveying (NCEES, USA) and

the Engineering Council (UK)

together "the parties".

To facilitate mobility of engineering professionals through streamlined Professional Registration/Membership processes.

1. PARTIES

NCEES is a not-for-profit organization with a mission to advance licensure for engineers and surveyors in order to safeguard the health, safety, and welfare of the public. NCEES members are the engineering and surveying licensure boards from all 50 U.S. states, the District of Columbia, Guam, Northern Mariana Islands, Puerto Rico and the U.S. Virgin Islands.

The Engineering Council was incorporated by Royal Charter in 1981 to regulate the engineering profession in the UK.

2. DEFINITIONS

Within this document, the following definitions apply:

2.1 "Mutual recognition" means the process of establishing the competence of an individual for independent practice in an engineering occupational role as a requirement of Professional Registration/Licensure.

2.2 "Home Jurisdiction" means the jurisdiction in which an engineer making application under this agreement already holds Professional Registration/Licensure.

2.3 "Host Jurisdiction" means the jurisdiction to which an engineer applies for Professional Registration/Licensure under the terms of this Agreement.

2.4 "Professional Registration/Licensure" means recognition by a Signatory or Participating Authority awarded on the basis of a demonstration of competence for independent practice through a professional review based on the competency framework UK-SPEC or a US Member Board PE License, in combination with the International Professional Engineer title (IntPE).

2.5 "Participating Authority" means a UK Professional Engineering Institution (PEI) licensed by the Engineering Council to award CEng that has ratified this agreement. A list of current Participating Authorities will be maintained by the Engineering Council and provided to NCEES This list is shown in Appendix 3.

2.6 "Participating Member Board" means a US Licensing Authority that has opted into this agreement. Participating states agree to accept an NCEES record from a UK Chartered Engineer that has been gained via this agreement. A current list of Participating Member Boards will be maintained by NCEES and be provided to The Engineering Council. This list is shown in Appendix 4.

2.7 Nothing in this agreement supersedes national or state legislation as applicable in the jurisdiction of the Participating Authority or Participating Member Board.

3. PURPOSE AND SCOPE

3.1 This Agreement provides for a streamlined process by which engineers with Professional Registration/Licensure in their home jurisdiction in this agreement can gain recognition in the host jurisdiction. The agreement is intended to provide

- a streamlined route to the UK Chartered Engineer title for US Professional Engineers with a state license and
- a streamlined route to a US Member Board Professional Engineer license for UK Chartered Engineers.

3.2 This Agreement is intended to streamline the admission pathway in the host jurisdiction for engineers holding a Professional Registration/Registered Professional Title/License in the home jurisdiction. This Agreement aims to:

- minimise duplication of assessment processes
- recognise jurisdictional differences and organizational autonomy
- maintain confidence in the quality of Professional Registration/Licensure decisions in both jurisdictions
- avoid restrictions on the cross-border provision of a service.

3.3 This Agreement covers engineers who have been admitted to any of the following Professional Registrations:

3.3.1 Professional Engineer

- Chartered Engineer (CEng), who also holds the title International Professional Engineer (IntPE), awarded by the Engineering Council, UK
- Professional Engineer (PE), licensed in a participating US Member Board, who also holds the title International Professional Engineer (IntPE), awarded by NCEES. This is also known as an NCEES International Registered Professional Engineer (IRPE)
- The requirements for attaining IntPE/IRPE in each jurisdiction are set in Appendix 1

3.4 Nothing in this Agreement shall apply to individual practice or malpractice disputes.

3.5 Engineers who have gained Professional Registration/Licensure in the home jurisdiction through another mutual recognition pathway, containing exemptions from the usual assessment process, are not eligible for the pathways set out in this agreement.

4. MUTUAL RECOGNITION PROVISIONS

4.1 The parties agree to apply processes and criteria consistent with the mutual recognition pathways set out in Appendix 2 when considering applications for Professional Registration/Licensure from engineers who hold /Professional Registration/Licensure in the home jurisdiction.

4.2 The Parties respect jurisdictional autonomy and recognise that there may be additional criteria imposed relevant to:

4.2.1 local jurisdictional practices, or the legislative or regulatory framework.

4.2.2 discipline-specific requirements of a Participating Authority or Participating Member Board.

5. DISCIPLINE AND ENFORCEMENT

5.1 Both Parties and all Participating Authorities and Participating Member Boards will cooperate to the extent possible on disciplinary and enforcement issues.

5.2 An application for Professional Registration/Licensure made under this Agreement must include a question requiring the applicant to disclose any sanctions related to the practice of engineering in other jurisdictions. Information regarding sanctions may be considered in the assessment process.

5.3 An application for Professional Registration/Licensure can only be made under this Agreement if the applicant provides written permission for parties to distribute and exchange assessment information and any information regarding sanctions between all involved jurisdictions.

5.4 Failure to fully disclose or provide any of the required information may be the basis for denial of the application, or for sanctions, including revocation of the Professional Registration/Licensure.

5.5 Each jurisdiction will take appropriate action in accordance with their rules and regulations if an engineer violates the standards of that jurisdiction. Each jurisdiction shall promptly report sanctions to the other jurisdiction in which it knows the engineer is recognised via an appropriate alert mechanism.

5.6 A jurisdiction will take appropriate action, subject to its own rules and regulations and the principle of natural justice, related to a sanction that is reported to them by another jurisdiction.

6. IMMIGRATION AND VISA ISSUES

6.1 Professional Registration/Certification granted under this Agreement in a Host Jurisdiction does not preclude the need to conform to applicable immigration and visa requirements of the Host Jurisdiction.

7. INFORMATION EXCHANGE

7.1 The Parties will notify each other and provide copies of any major changes in policy, criteria, procedures and programmes that might affect this Agreement.

7.2 The Parties will provide an annual report to each other on all applicants who have applied pursuant to the terms of this Agreement.

7.3 The Parties will from time-to-time undertake mutual observation of processes and procedures. This shall be done routinely as part of the renewal of the agreement.

8. DISPUTE RESOLUTION

8.1 The Parties to this Agreement will at all times endeavour to agree on the interpretation and application of this Agreement and will make every attempt through co-operation and consultation to arrive at a mutually satisfactory resolution of any matter that might affect its operation. If a dispute arises that cannot be resolved through informal discussions within sixty (60) days of when the dispute arises, the Parties will attempt to resolve the dispute through non-binding mediation and/or another form of alternative dispute resolution as may be agreed upon by the Parties, prior to any Party resorting to litigation.

8.2 The Parties may request in writing consultation with the other Party regarding any actual or proposed measure or any other matter that it considers might affect the operation or interpretation of this Agreement.

9. TERM OF AGREEMENT

9.1 This Agreement will come into effect when signed by the Parties.

9.2 This Agreement supersedes all other such mutual recognition agreements between NCEES, the Engineering Council and the Participating Authorities.

9.3 The Parties will review and update the Agreement and recommend changes where appropriate at least every five (5) years. This Agreement may be amended, however, only with the written consent of both Parties.

10. TERMINATION

10.1 A Party or any Participating Authority may withdraw from this Agreement six (6) months after it provides written notice of withdrawal to the other Party. If a Participating Authority withdraws, the Agreement will remain in force for the remaining Participating Authorities.

10.2 If at any time all Participating Authorities have withdrawn from the Agreement, the Agreement will automatically terminate.

10.3 Any registrant approved or in the process of being assessed at the time of the Agreement being terminated will be treated as if this Agreement is still in existence.

NCEES **Engineering Council**

Date Executed:

APPENDIX 1

The requirements for attaining IntPE/IRPE in each jurisdiction.

Requirement	NCEES International Registered Professional Engineer (IntPE)	Engineering Council CEng IntPE
Registration /Licensure	Be a citizen or permanent resident currently licensed as a professional engineer in a U.S. state or territory	Be currently registered as a Chartered Engineer and member of a UK PEI
Discipline	Hold a record clean of disciplinary action	Be currently in good standing with your PEI and have no disciplinary action outstanding
Underpinning Knowledge and Understanding	Have a degree from an EAC ABET-accredited engineering program, or an accredited degree recognised under the Washington Accord.	An accredited degree recognised under the Washington Accord, or equivalent academic qualification
Experience	Have at least seven years of qualifying experience, including two years in responsible charge of significant engineering work	Have at least seven years of qualifying experience, including two years in responsible charge of significant engineering work
Assessment	Have passing scores on the NCEES FE and PE examinations	1) Have demonstrated underpinning engineering knowledge and understanding to UK/European Masters level in their discipline 2) Have demonstrated that they meet the UK standard of competence and commitment set out in UK-SPEC through: a) Professional Review part 1: assessment of discipline-specific documentary evidence b) Professional Review part 2: in-depth interview by two trained assessors, including applicant presentation 3) Approval from registration committee
Competence	NCEES Model Rules and IPEA professional competences	UK-SPEC Chartered Engineer Competences and IPEA professional competences
Continuing Professional Development	Have met the applicable continuing professional competency (CPC) requirements of the jurisdiction(s) where you are licensed. If the jurisdiction does not have a CPC requirement, the applicant must comply with the NCEES CPC Standard	Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice
Discipline-specific and jurisdictional requirements (e.g., local laws, ethics exam)	Handled at Member Board level	Handled by PEI

APPENDIX 2

MUTUAL RECOGNITION PATHWAYS

The Professional Registration/Licensure processes of the Parties are as follows:

a) NCEES requirements to obtain an NCEES Record as the Host Jurisdiction

An NCEES Record is a verified compilation of information an applicant is required to submit to a state licensing board as part of the licensure application process. Each completed Record is a verified compilation of an applicant's official academic transcripts, full employment history, professional references, and exam results.

The NCEES Record is designed to meet the licensure requirements of most states. Since licensure requirements vary from state to state, there may be times when a Record holder must submit additional information to a state licensing board to satisfy its licensure requirements. This may include information about their education, references, existing licenses, or experience information.

Standard application requirements	Required under the Agreement Y/N	Notes
Submission of an application form	Yes	Create online NCEES record
References	Yes, but can be UK registrants.	Five references who can reflect the character and diversity of your experience and are personally acquainted with your professional reputation. For engineering applicants, references must be engineers who are licensed in the United States.
Education information	Yes	Details for each college, university, and technical school attended, including transcripts. NCEES accepts the UK PEI assessment of the academic base as meeting NCEES/IntPE requirements.
Professional Experience	Yes	Chronological listing of work experience beginning with graduation from a university
Competence assessment	No	Already meets IntPE requirements
FE and PE exam verification	No	Exempt under the agreement
CPD review	In line with Member Board requirements	IntPE CPD requirements already met
Local knowledge and/or discipline specific practice assessment (e.g., local laws and ethics exam)	In line with Member Board requirements	
Approval by NCEES Member Board	Yes	

b) Engineering Council requirements for registration as a Chartered Engineer (CEng) as the Host Jurisdiction

The Engineering Council was incorporated by Royal Charter in 1981 to regulate the engineering profession in the UK. The standards of professional competence and commitment are set out in the UK Standard for Professional Engineering Competence (UK-SPEC). This standard requires registrants to make a commitment to recording their CPD activities. Participating Authorities undertake random samples of professionally active registrants' CPD records on an annual basis.

Standard application requirements	Required under the Agreement (Y/N)	Notes
Submission of an application form	Yes	In English
Academic assessment	No	Applicants are required to provide copies of academic qualifications
Holistic competence assessment	No	
Local knowledge and/or discipline specific practice assessment	Yes	Any assessment is normally to be restricted to situations where UK-specific knowledge or discipline-specific requirements are applied as standard to home candidates
Professional Review Interview	No	Any assessment of Local Knowledge or current competence may involve an interactive interview
CPD review	In line with UK Participating Authority requirements	Registrants are required to ensure their CPD records are up to date. UK Participating authorities undertake annual random samples of professionally active registrants' CPD records and provide feedback.
Registration (Professional Registration/Membership) Committee Approval	Yes	

Assessment Process

On receipt of an application through this agreement, the Host Jurisdiction/Participating Authority will contact the Home Jurisdiction/Participating Authority to request confirmation of Professional Registration/Certification status, and registration/licensure date and date of being admitted to the international register (IntPE).

Interactive assessments or professional review interviews will only be used if their purpose is to assess local knowledge and/or discipline specific practice.

Written assignments or formal examinations may also be valid mechanisms for assessing local knowledge or discipline specific practice if they are used for the same purpose for assessing local engineers in the host jurisdiction.

Appendix 3

List of UK Participating Authorities (subject to ratification)

1. BCS, The Chartered Institute for IT
2. British Institute of Non-Destructive Testing (BINDT)
3. Chartered Association of Building Engineers (CABE)
4. Chartered Institution of Building Services Engineers (CIBSE)
5. Chartered Institution of Civil Engineering Surveyors (CICES)
6. Chartered Institution of Highways & Transportation (CIHT)
7. Chartered Institute of Plumbing and Heating Engineering (CIPHE)
8. Chartered Institution of Water and Environmental Management (CIWEM)
9. Energy Institute (EI)
10. Institution of Agricultural Engineers (IAgrE)
11. Institution of Civil Engineers (ICE)
12. Institution of Chemical Engineers (IChemE)
13. Institution of Engineering Designers (IED)
14. Institution of Engineering and Technology (IET)
15. Institute of Explosives Engineers (IExpE)
16. Institution of Fire Engineers (IFE)
17. Institution of Gas Engineers and Managers (IGEM)
18. Institute of Highway Engineers (IHE)
19. Institute of Healthcare Engineering and Estate Management (IHEEM)
20. Institution of Lighting Professionals (ILP)
21. Institute of Marine Engineering, Science & Technology (IMarEST)
22. Institution of Mechanical Engineers (IMechE)
23. Institute of Measurement and Control (InstMC)
24. Institution of Royal Engineers (InstRE)
25. Institute of Acoustics (IOA)
26. Institute of Materials, Minerals and Mining (IOM3)
27. Institute of Physics (IOP)
28. Institute of Physics and Engineering in Medicine (IPEM)
29. Institution of Railway Signal Engineers (IRSE)
30. Institution of Structural Engineers (IStructE)
31. Institute of Water
32. INCOSE UK, the UK Chapter of the International Council on Systems Engineering (INCOSE)
33. Permanent Way Institution (PWI)
34. Nuclear Institute (NI)
35. Royal Aeronautical Society (RAeS)
36. Royal Institution of Naval Architects (RINA)
37. Safety and Reliability Society (SaRS)
38. The Society of Operations Engineers (SOE)
39. The Welding Institute

Links are found here: https://www.engc.org.uk/peis

Appendix 4

List of Participating US Member Boards

APPENDIX B

INTERNATIONAL ENGINEERING ALLIANCE

GRADUATE ATTRIBUTES & PROFESSIONAL COMPETENCIES

PROUDLY SUPPORTED BY:

PREAMBLE

The International Engineering Alliance is pleased to announce that all Accords and Agreements have approved revisions to its Graduate Attributes and Professional Competencies (GAPC) international benchmark. The review, supported by UNESCO, was undertaken by a joint IEA-WFEO Working Group who engaged extensively with IEA signatories, WFEO members and WFEO partners representing academics, industry and women globally. They reflect requirements for new technologies and engineering disciplines, new pedagogies and values such as sustainable development, diversity and inclusion and ethics. They are well positioned to support the engineering role in building a more sustainable and equitable world.

Our thanks to UNESCO and WFEO for their constant support and endorsement and to the GAPC Working Group members, who commenced this work three years ago and who have worked tirelessly to bring this to fruition.

VERSION: 2021.1

The documents presented in this compendium are current as of 21 June 2021.

IEA Constituent Agreements

Washington Accord	International Professional Engineers Agreement
Sydney Accord	International Engineering Technologists Agreement
Dublin Accord	APEC Engineer Agreement
	Agreement for International Engineering Technicians

Graduate Attributes and Professional Competences

Approved Version 4: 21 June 2021

This document is available through the IEA website: http://www.ieagreements.org

Executive Summary

Many accrediting bodies for engineering qualifications have developed outcomes-based criteria for evaluating programs. Similarly, many engineering regulatory bodies have developed or are in the process of developing competence-based standards for registration. Educational and professional accords for mutual recognition of qualifications and registration have developed statements of graduate attributes and professional competence profiles. This document, which is a revised version that takes into account the present-day state of engineering activities, presents the background to these developments, their purpose, and the methodology and limitations of the statements. After defining general range statements that allow the competences of the different categories to be distinguished, the paper presents the graduate attributes and professional competence profiles for three professional tracks: engineer, engineering technologist, and engineering technician.

1 Introduction

Engineering is an activity that is essential to meeting the needs of people, economic development and the provision of services to society. Engineering involves the purposeful application of mathematical and natural sciences and a body of engineering knowledge, technology and techniques. Engineering seeks to produce solutions of which the effects are predicted to the greatest degree possible, in often uncertain contexts. While bringing benefits, engineering activity has potential adverse consequences. Engineering therefore must be carried out responsibly and ethically, use available resources efficiently, be economic, safeguard health and safety, be environmentally sound and sustainable and generally manage risks throughout the entire lifecycle of a system. The United Nations Sustainable Development Goals present targets for 2030. Engineers are vital contributors for making progress towards these goals.

Typical engineering activity requires several roles including those of the engineer, engineering technologist and engineering technician, recognized as professional registration categories in many jurisdictions[1]. These roles are defined by their distinctive competences

[1] The terminology used in this document uses the term *engineering* as an activity in a broad sense and *engineer* as shorthand for the various types of professional and chartered engineer. It is recognized that *engineers*,

and their level of responsibility to the public. There is a degree of overlap between roles. The distinctive competences, together with their educational underpinnings, are defined in sections 4 to 6 of this document.

The development of an engineering professional in any of the categories is an ongoing process with important identified stages. The first stage is the attainment of an *accredited educational qualification*, the graduate stage. The fundamental purpose of *engineering education* is to build a knowledge base and attributes to enable the graduate to continue learning and to proceed to formative development that will develop the competences required for independent practice. The second stage, following a period of formative development, is *professional registration*. The fundamental purpose of formative development is to build on the educational base to develop the competences required for independent practice in which the graduate works with engineering practitioners and progresses from an assisting role to taking more individual and team responsibility until competence can be demonstrated at the level required for registration. Once registered, the practitioner must maintain and expand competence.

For engineers, engineering technologists, and engineering technicians, a third milestone is to qualify for the *international register* held by the various jurisdictions. In addition, engineers, technologists and technicians are expected to maintain and enhance competence throughout their working lives.

Several international accords provide for recognition of graduates of accredited programs of each signatory by the remaining signatories. The Washington Accord (WA) provides for mutual recognition of programs accredited for the engineer track. The Sydney Accord (SA) establishes mutual recognition of accredited qualifications for engineering technologist. The Dublin Accord (DA) provides for mutual recognition of accredited qualifications for engineering technicians. These accords are based on the principle of substantial equivalence rather than exact correspondence of content and outcomes. This document records the signatories' consensus on the attributes of graduates for each accord.

Similarly, the International Professional Engineers Agreement[2] (IPEA), the International Engineering Technologists Agreement[3] (IETA), and the Agreement for International Engineering Technicians (AIET) provide mechanisms to support the recognition of a professional registered in one signatory jurisdiction obtaining recognition in another. The signatories have formulated consensus competence profiles for the registration and these are recorded in this document.

Section 2 gives the background to the graduate attributes presented in section 5. Section 3 provides background to the professional competence profiles presented in section 6. General range statements are presented in section 4. The graduate attributes are presented in section 5 while the professional competence profiles are defined in section 6. Appendix A defines terms used in this document. Appendix B sketches the origin and development history of the graduate attributes and professional competence profiles.

2 Graduate Attributes

This section gives background to the graduate attributes presented in section 5.

Purpose of Graduate Attributes

Graduate attributes form a set of individually assessable outcomes that are the components indicative of the graduate's potential to acquire competence to practise at the appropriate

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engineering technologists, and *engineering technicians* may have specific titles or designations and differing legal empowerment or restrictions within individual jurisdictions.

level. The graduate attributes are exemplars of the attributes expected of graduate from an accredited program. Graduate attributes are clear, succinct statements of the expected capability, qualified if necessary, by a range indication appropriate to the type of program.

The graduate attributes are intended to assist Signatories and Provisional Members to develop or review their outcomes-based accreditation criteria for use by their respective jurisdictions. Graduate attributes also guide bodies in developing or revising their accreditation systems with a view to seeking signatory status.

Graduate attributes are defined for educational qualifications in the engineer, engineering technologist and engineering technician tracks. The graduate attributes serve to identify the distinctive characteristics as well as areas of commonality between the expected outcomes of different types of programs.

Limitation of Graduate Attributes

Each signatory defines the standards for the relevant track (engineer, engineering technologist or engineering technician) against which engineering educational programs are accredited. Each educational level accord is based on the principle of *substantial equivalence*; that is, programs are not expected to have identical outcomes and content but rather produce graduates who could enter employment and be fit to undertake a program of training and experiential learning leading to professional competence and registration. The Graduate Attributes provide a point of reference for bodies to describe the outcomes of substantially equivalent qualification. The Graduate Attributes do not, in themselves, constitute an “international standard” for accredited qualifications but provide a widely accepted common reference or benchmark for bodies to describe the outcomes of substantially equivalent qualifications.

Graduate Attributes may be accepted for use within a jurisdiction or adapted to accommodate the context and any specific requirements of the jurisdiction. Where a signatory has adapted or developed their own graduate attributes, it is expected that there is alignment to these Graduate Attributes.

The term graduate does not imply a particular type of qualification but rather the exit level of the qualification, be it a degree or diploma.

Graduate Attributes and the Quality of Programs

The Washington, Sydney and Dublin Accords “recognize the substantial equivalence of … programs satisfying the academic requirements for practice …” for engineers, engineering technologists and engineering technicians respectively. The Graduate Attributes are assessable outcomes, supported by level statements, developed by the signatories that give confidence that the educational objectives of programs are being achieved. The quality of a program depends not only on the stated objectives and attributes to be assessed but also on the program design, resources committed to the program, the teaching and learning process and assessment of students, including confirmation that the graduate attributes are satisfied. The Accords therefore base the judgement of the substantial equivalence of programs accredited by signatories on both the Graduate Attributes and the best practice indicators for evaluating program quality listed in the Accords’ Rules and Procedures[2].

[2] Accord Rules and Procedures. June 2018, section C.4.5. Available at www.ieagreements.org.

Scope and Organization of Graduate Attributes

The graduate attributes are organized using eleven headings shown in section 5.2. Each heading identifies the differentiating characteristic that allows the distinctive roles of engineers, technologists and technicians to be distinguished by range information.

For each attribute, statements are formulated for engineer, engineering technologist and engineering technician using a common stem, with ranging information appropriate to each educational track defined in sections 4.1 and 5.1. For example, for the **Engineering Knowledge** attribute:

> **Common Stem:** Apply knowledge of mathematics, natural science, computing and engineering fundamentals, and an engineering specialization …
>
> > **Engineer Range:** … as specified in the engineer knowledge profile to develop solutions to complex engineering problems.
> > **Engineering Technologist Range:** … as specified in the engineering technologist knowledge profile to defined and applied engineering procedures, processes, systems or methodologies.
> > **Engineering Technician Range:** … as specified in the engineering technician knowledge profile to wide practical procedures and practices.

The resulting statements are shown below for this example:

Engineer Graduate	Engineering Technologist Graduate	Engineering Technician Graduate
Apply knowledge of mathematics, science, computing and engineering fundamentals and an engineering specialization as specified in WK1-WK4 respectively to develop solutions to complex engineering problems.	Apply knowledge of mathematics, science, computing and engineering fundamentals and an engineering specialization as specified in SK1-SK4 respectively to defined and applied engineering procedures, processes, systems or methodologies.	Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization as specified in DK1-DK4 respectively to wide practical procedures and practices.

The range qualifier in several attribute statements uses the notions of *complex engineering problems*, *broadly-defined engineering problems* and *well-defined engineering problems*. These shorthand level descriptors are defined in section 4.1.

The attributes are chosen to be universally applicable and reflect acceptable minimum standards and be capable of objective measurement. While all attributes are important, individual attributes are not necessarily of equal weight. Attributes are selected that are expected to be valid for extended periods and changed infrequently only after considerable debate. Attributes may depend on information external to this document, for example generally accepted principles of ethical conduct.

The full set of graduate attribute definitions is given in section 5.

Contextual Interpretation

The graduate attributes are stated generically and are applicable to all engineering disciplines. In interpreting the statements within a disciplinary context, individual statements may be amplified and given particular emphasis but they must not be altered in substance or individual elements ignored.

Best Practice in Application of Graduate Attributes

The attributes of Accord programs are defined as a *knowledge profile*, which is an indicated volume of learning and the attributes against which graduates must be able to perform. The requirements are stated without reference to the design of programs that would achieve the requirements. Providers therefore are free to design programs with different detailed structures, learning pathways and modes of delivery. Evaluation of individual programs is the concern of national accreditation systems.

3 Professional Competence Profiles

Purpose of Professional Competence Profiles

A professionally or occupationally *competent person* has the attributes necessary to perform the activities within the profession or occupation to the standards expected in independent employment or practice. The *professional competence profiles* for each professional category record the elements of competence necessary for performance that the professional is expected to be able to demonstrate in a holistic way at the stage of attaining registration.

Professional competence can be described using a set of attributes corresponding largely to the graduate attributes, but with different emphases. For example, at the professional level, the ability to take responsibility in a real-life situation is essential. Unlike the graduate attributes, professional competence is more than a set of attributes that can be demonstrated individually. Rather, competence must be assessed holistically.

Scope and Organization of Professional Competence Profiles

The professional competence profiles are written for each of the three categories: engineer, engineering technologist and engineering technician at the point of registration[3]. Each profile consists of thirteen elements. Individual elements are formulated around a differentiating characteristic using a stem and modifier, similar to the method used for the graduate attributes described in section 2.3.

The stems are common to all three categories and the range modifiers allow distinctions and commonalities between categories to be identified. Like their counterparts in the graduate attributes, the range statements use the notions of complex engineering problems, broadly-defined engineering problems and well-defined engineering problems defined in section 4.1. At the professional level, a classification of engineering activities is used to define ranges and to distinguish between categories. Engineering activities are classified as *complex*, *broadly-defined* or *well-defined*. These shorthand level descriptors are defined in section 4.2.

Limitations of Professional Competence Profile

As in the case of the graduate attributes, the professional competence profiles are not prescriptive in detail but rather reflect the essential elements that would be present in competence standards.

The professional competence profiles do not specify performance indicators or how the above items should be interpreted in assessing evidence of competence from different areas of practice or for different types of work. Section 3.4 examines contextual interpretation.

[3] Requirements for the IEPA, IETA, and AIET International Registers call for enhanced competence and responsibility.

Each jurisdiction may define *performance indicators*; that is, actions on the part of the candidate that demonstrate competence. For example, a design competence may be evidenced by the following performances:

1: Identify and analyse a design/planning requirement and draw up a detailed requirements specification

2: Synthesise a range of potential solutions to problem or approaches to project execution

3: Evaluate potential approaches to meet requirements and their possible impacts

4: Fully develop design of selected option

5: Produce design documentation for implementation

Contextual Interpretation

Although competence can be demonstrated in different areas of practice and types of work, competence statements are independent of, and separate to, any specific discipline. Thus the competence statements accommodate different types of work (for example, design, research and development and engineering management) by using the broad phases in the cycle of engineering activity (problem analysis, synthesis, implementation, operation and evaluation) together with the management attributes needed. The competence statements also include the personal attributes needed for competent performance irrespective of specific local requirements: communication, ethical practice, judgement, taking responsibility and the protection of society.

The professional competence profiles are stated generically and are applicable to all engineering disciplines. The application of a competence profile may require amplification in different regulatory, disciplinary, occupational or environmental contexts. In interpreting the statements within a particular context, individual statements may be amplified and given particular emphasis but must not be altered in substance or ignored.

Mobility between Professional Categories

The Graduate Attributes and Professional Competence for each of the three categories of engineering practitioner (engineer, engineering technologist and engineering technician) define the benchmark route or vertical progression in each category. This document does not address the movement of individuals between categories, a process that usually requires additional education, training and experience. The Graduate Attributes and Professional Competences, through their definitions of level of demand, knowledge profile and outcomes to be achieved, allow a person planning such an attainment to judge the further learning and experience that will be required. The education and registration requirements of the jurisdiction should be examined for specific requirements.

4 Common Range and Contextual Definitions

Range of Problem Identification and Solving

References included are to the Knowledge and Attitude Profile in 5.1

In the context of both Graduate Attributes and Professional Competences:			
Attribute	***Complex Engineering Problems*** have characteristic WP1 and some or all of WP2 to WP7*:*	***Broadly-defined Engineering Problems* have characteristic SP1 and some or all of SP2 to SP7*:***	***Well-defined Engineering Problems*** have characteristic DP1 and some or all of DP2 to DP7*:*
Depth of Knowledge Required	**WP1:** Cannot be resolved without in-depth engineering knowledge at the level of one or more of WK3, WK4, WK5, WK6 or WK8 which allows a fundamentals-based, first principles analytical approach	**SP1:** Cannot be resolved without engineering knowledge at the level of one or more of SK 4, SK5, and SK6 supported by SK3 with a strong emphasis on the application of developed technology	**DP1:** Cannot be resolved without extensive practical engineering knowledge as reflected in DK5 and DK6 supported by theoretical knowledge defined in DK3 and DK4
Range of conflicting requirements	**WP2:** Involve wide-ranging and/or conflicting technical, non-technical issues (such as ethical, sustainability, legal, political, economic, societal) and consideration of future requirements	**SP2:** Involve a variety of conflicting technical and non-technical issues (such as ethical, sustainability, legal, political, economic, societal) and consideration of future requirements	**DP2:** Involve several technical and non-technical issues (such as ethical, sustainability, legal, political, economic, societal) and consideration of future requirements
Depth of analysis required	**WP3:** Have no obvious solution and require abstract thinking, creativity and originality in analysis to formulate suitable models	**SP3:** Can be solved by application of well-proven analysis techniques and models	**DP3:** Can be solved in standardized ways
Familiarity of issues	**WP4:** Involve infrequently encountered issues or novel problems	**SP4:** Belong to families of familiar problems which are solved in well-accepted ways	**DP4:** Are frequently encountered and thus familiar to most practitioners in the practice area
Extent of applicable codes	**WP5:** Address problems not encompassed by standards and codes of practice for professional engineering	**SP5:** Address problems that may be partially outside those encompassed by standards or codes of practice	**DP5:** Addresses problems that are encompassed by standards and/or documented codes of practice
Extent of stakeholder involvement and conflicting requirements	**WP6:** Involve collaboration across engineering disciplines, other fields, and/or diverse groups of stakeholders with widely varying needs	**SP6:** Involve different engineering disciplines and other fields with several groups of stakeholders with differing and occasionally conflicting needs	**DP6:** Involve a limited range of stakeholders with differing needs
Interdependence	**WP 7:** Address high level problems with many components or sub-problems that	**SP7:** Address components of systems within complex engineering problems	**DP7:** Address discrete components of engineering systems

	may require a systems approach		

Range of Engineering Activities

Attribute	Complex Activities	Broadly-defined Activities	Well-defined Activities
Preamble	**Complex activities** means (*engineering)* activities or projects that have some or all of the following characteristics:	**Broadly defined activities** means (*engineering)* activities or projects that have some or all of the following characteristics:	**Well-defined activities** means *(engineering)* activities or projects that have some or all of the following characteristics:
Range of resources	**EA1:** Involve the use of diverse resources including people, data and information, natural, financial and physical resources and appropriate technologies including analytical and/or design software	**TA1:** Involve a variety of resources including people, data and information, natural, financial and physical resources and appropriate technologies including analytical and/or design software	**NA1:** Involve a limited range of resources for example people, data and information, natural, financial and physical resources and/or appropriate technologies
Level of interactions	**EA2:** Require optimal resolution of interactions between wide-ranging and/or conflicting technical, non-technical, and engineering issues	**TA2:** Require the best possible resolution of occasional interactions between technical, non-technical, and engineering issues, of which few are conflicting	**NA2:** Require the best possible resolution of interactions between limited technical, non-technical, and engineering issues
Innovation	**EA3:** Involve creative use of engineering principles, innovative solutions for a conscious purpose, and research-based knowledge	**TA3:** Involve the use of new materials, techniques or processes in non-standard ways	**NA3:** Involve the use of existing materials techniques, or processes in modified or new ways
Consequences to society and the environment	**EA4:** Have significant consequences in a range of contexts, characterized by difficulty of prediction and mitigation	**TA4:** Have reasonably predictable consequences that are most important locally, but may extend more widely	**NA4:** Have predictable consequences with relatively limited and localized impact.
Familiarity	**EA5:** Can extend beyond previous experiences by applying principles-based approaches	**TA5:** Require a knowledge of normal operating procedures and processes	**NA5:** Require a knowledge of practical procedures and practices for widely-applied operations and processes

5 Accord program profiles

The following tables provide profiles of graduates of three types of tertiary education engineering programs. See section 4 for definitions of complex engineering problems, broadly-defined engineering problems, and well-defined engineering problems.

Knowledge and Attitude Profile

A Washington Accord program provides:	**A Sydney Accord program** provides:	**A Dublin Accord program** provides:
WK1: A systematic, theory-based understanding of the **natural sciences** applicable to the discipline and awareness of relevant **social sciences**	**SK1:** A systematic, theory-based understanding of the **natural sciences** applicable to the sub-discipline and awareness of relevant **social sciences**	**DK1:** A descriptive, formula-based understanding of the **natural sciences** applicable in a sub-discipline and awareness of directly relevant **social sciences**
WK2: Conceptually-based **mathematics**, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline	**SK2:** Conceptually-based **mathematics**, numerical analysis, , data analysis, statistics and formal aspects of computer and information science to support detailed consideration and use of models applicable to the sub-discipline	**DK2:** Procedural **mathematics**, numerical analysis, statistics applicable in a sub-discipline
WK3: A systematic, theory-based formulation of **engineering fundamentals** required in the engineering discipline	**SK3:** A systematic, theory-based formulation of **engineering fundamentals** required in an accepted sub-discipline	**DK3:** A coherent procedural formulation of **engineering fundamentals** required in an accepted sub-discipline
WK4: Engineering **specialist knowledge** that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.	**SK4:** Engineering **specialist knowledge** that provides theoretical frameworks and bodies of knowledge for an accepted sub-discipline	**DK4:** Engineering **specialist knowledge** that provides the body of knowledge for an accepted sub-discipline
WK5: Knowledge, including efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts, that supports **engineering design and operations** in a practice area	**SK5: :** Knowledge, including efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts, that supports **engineering design and operations** using the technologies of a practice area	**DK5:** Knowledge that supports **engineering design and operations** based on the techniques and procedures of a practice area
WK6: Knowledge of **engineering practice** (technology) in the practice areas in the engineering discipline	**SK6:** Knowledge of **engineering technologies** applicable in the sub-discipline	**DK6:** Codified **practical engineering knowledge** in recognized practice area.

WK7: Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development*	**SK7 Knowledge** of the role of technology in society and identified issues in applying engineering technology, such as public safety and sustainable development*	**DK7: Knowledge** of issues and approaches in engineering technician practice, such as public safety and sustainable development*
WK8: Engagement with selected knowledge in the current **research literature** of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues	**SK8** Engagement with the current **technological literature** of the discipline and awareness of the power of critical thinking	**DK8:** Engagement with the current **technological literature** of the practice area
WK9: Ethics, inclusive behavior and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes	**SK9: Ethics, inclusive behavior and conduct.** Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes	**DK9: Ethics, inclusive behavior and conduct.** Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes
*Represented by the 17 UN Sustainable Development Goals (UN-SDG)		
A program that builds this type of knowledge and attitude and develops the base attributes listed below is typically achieved in 4 to 5 years of study, depending on the level of students at entry.	A program that builds this type of knowledge and attitude and develops the base attributes listed below is typically achieved in 3 to 4 years of study, depending on the level of students at entry.	A program that builds this type of knowledge and attitude and develops the base attributes listed below is typically achieved in 2 to 3 years of study, depending on the level of students at entry.

Graduate Attribute Profiles

References included are to the Knowledge and Attitude Profile in 5.1.

Differentiating Characteristic	Engineer Graduate	Engineering Technologist Graduate	Engineering Technician Graduate
Engineering Knowledge: Breadth, depth and type of knowledge, both theoretical and practical	**WA1:** Apply knowledge of mathematics, natural science, computing and engineering fundamentals, and an engineering specialization as specified in WK1 to WK4 respectively to develop solutions to complex engineering problems	**SA1:** Apply knowledge of mathematics, natural science, computing and engineering fundamentals and an engineering specialization as specified in SK1 to SK4 respectively to defined and applied engineering procedures, processes, systems or methodologies.	**DA1:** Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialization as specified in DK1 to DK4 respectively to wide practical procedures and practices.
Problem Analysis Complexity of analysis	**WA2:** Identify, formulate, research literature and analyze *complex* engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences with holistic considerations for sustainable development* (WK1 to WK4)	**SA2:** Identify, formulate, research literature and analyze *broadly-defined* engineering problems reaching substantiated conclusions using analytical tools appropriate to the discipline or area of specialisation. (SK1 to SK4)	**DA2:** Identify and analyze *well-defined* engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity. (DK1 to DK4)
Design/development of solutions: Breadth and uniqueness of engineering problems i.e., the extent to which problems are original and to which solutions have not previously been identified or codified	**WA3:** Design creative solutions for *complex* engineering problems and design systems, components or processes to meet identified needs with appropriate consideration for public health and safety, whole-life cost, net zero carbon as well as resource, cultural, societal, and environmental considerations as required (WK5)	**SA3:** Design solutions for *broadly-defined* engineering technology problems and *contribute to* the design of systems, components or processes to meet identified needs with appropriate consideration for public health and safety, whole-life cost, net zero carbon as well as resource, cultural, societal, and environmental considerations as required (SK5)	**DA3:** Design solutions for *well-defined* technical problems and *assist with* the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety as well as cultural, societal, and environmental considerations as required (DK5)

Differentiating Characteristic	Engineer Graduate	Engineering Technologist Graduate	Engineering Technician Graduate
Investigation: Breadth and depth of investigation and experimentation	**WA4:** Conduct investigations of *complex* engineering problems using research methods including research-based knowledge, design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions (WK8)	**SA4:** Conduct investigations of *broadly-defined* engineering problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions (SK8)	**DA4:** Conduct investigations of *well-defined* problems; locate and search relevant codes and catalogues, conduct standard tests and measurements (DK8)
Tool Usage: Level of understanding of the appropriateness of technologies and tools	**WA5:** Create, select and apply, and recognize limitations of appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to *complex* engineering problems (WK2 and WK6)	**SA5:** Select and apply, and recognize limitations of appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to *broadly-defined* engineering problems (SK2 and SK6)	**DA5:** Apply appropriate techniques, resources, and modern computing, engineering, and IT tools to *well-defined* engineering problems, with an awareness of the limitations. (DK2 and DK6)
The Engineer and the World: Level of knowledge and responsibility for sustainable development	**WA6:** When solving complex engineering problems, analyze and evaluate sustainable development impacts* to: society, the economy, sustainability, health and safety, legal frameworks, and the environment (WK1, WK5, and WK7)	**SA6:** When solving broadly-defined engineering problems, analyze and evaluate sustainable development impacts* to: society, the economy, sustainability, health and safety, legal frameworks, and the environment (SK1, SK5, and SK7)	**DA6:** When solving well-defined engineering problems, evaluate sustainable development impacts* to: society, the economy, sustainability, health and safety, legal frameworks, and the environment (DK1, DK5, and DK7)
Ethics: Understanding and level of practice	**WA7:** Apply ethical principles and commit to professional ethics and norms of engineering practice and adhere to relevant national and international laws. Demonstrate an understanding of the need for diversity and inclusion (WK9)	**SA7:** Understand and commit to professional ethics and norms of engineering technology practice including compliance with national and international laws. Demonstrate an understanding of the need for diversity and inclusion (SK9)	**DA7:** Understand and commit to professional ethics and norms of technician practice including compliance with relevant laws. Demonstrate an understanding of the need for diversity and inclusion (DK9)
Individual and Collaborative Team work: Role in and diversity of team	**WA8:** Function effectively as an individual, and as a member or leader in diverse and inclusive teams and in multi-disciplinary, face-to-face, remote and distributed settings (WK9)	**SA8:** Function effectively as an individual, and as a member or leader in diverse and inclusive teams and in multi-disciplinary, face-to-face, remote and distributed settings (SK9)	**DA8:** Function effectively as an individual, and as a member or leader in diverse and inclusive teams and in multi-disciplinary, face-to-face, remote and distributed settings (DK9)

Differentiating Characteristic	Engineer Graduate	Engineering Technologist Graduate	Engineering Technician Graduate
Communication: Level of communication according to type of activities performed	**WA9:** Communicate effectively and inclusively on *complex* engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, taking into account cultural, language, and learning differences.	**SA9:** Communicate effectively and inclusively on *broadly-defined* engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, taking into account cultural, language, and learning differences.	**DA9:** Communicate effectively and inclusively on *well-defined* engineering activities with the engineering community and with society at large, by being able to comprehend the work of others, document their own work, and give and receive clear instructions
Project Management and Finance: Level of management required for differing types of activity	**WA10:** Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.	**SA10:** Apply knowledge and understanding of engineering management principles and apply these to one's own work, as a member or leader in a team and to manage projects in multidisciplinary environments.	**DA10:** Demonstrate awareness of engineering management principles as a member or leader in a technical team and to manage projects in multidisciplinary environments
Lifelong learning: Duration and manner	**WA11:** Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change (WK8)	**SA11:** Recognize the need for, and have the ability for i) independent and life-long learning and ii) critical thinking in the face of new specialist technologies (SK8)	**DA11:** Recognize the need for, and have the ability for independent updating in the face of specialized technical knowledge (DK8)
*Represented by the 17 UN Sustainable Development Goals (UN-SDG)			

INTERNATIONAL ENGINEERING ALLIANCE

6 Professional Competence Profiles

To meet the minimum standard of competence a person must demonstrate that they are able to practice competently, within a practice area, to the standard expected of a reasonable Professional Engineer/Engineering Technologist/Engineering Technician.

The extent to which the person is able to perform each of the following elements in practice area must be taken into account in assessing whether or not the individual meets the overall standard.

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Comprehend and apply universal knowledge: Breadth and depth of education and type of knowledge	**EC1:** Comprehend and apply advanced knowledge of the widely-applied principles underpinning good practice	**TC1:** Comprehend and apply the knowledge embodied in widely accepted and applied procedures, processes, systems or methodologies	**NC1:** Comprehend and apply knowledge embodied in standardized practices
Comprehend and apply local knowledge: Type of local knowledge	**EC2:** Comprehend and apply advanced knowledge of the widely-applied principles underpinning good practice specific to the jurisdiction of practice	**TC2:** Comprehend and apply the knowledge embodied procedures, processes, systems or methodologies that is specific to the jurisdiction of practice	**NC2:** Comprehend and apply knowledge embodied in standardized practices specific to the jurisdiction of practice.
Problem analysis: Complexity of analysis	**EC3:** Define, investigate and analyze complex problems using data and information technologies where applicable	**TC3:** Identify, clarify, and analyze broadly-defined problems using the support of computing and information technologies where applicable	**NC3:** Identify, state and analyze well-defined problems using the support of computing and information technologies where applicable
Design and development of solutions: Nature of the problem and uniqueness of the solution	**EC4:** Design or develop solutions to complex problems considering a variety of perspectives and taking account of stakeholder views	**TC4:** Design or develop solutions to broadly-defined problems considering a variety of perspectives.	**NC4:** Design or develop solutions to well-defined problems
Evaluation: Type of activity	**EC5:** Evaluate the outcomes and impacts of complex activities	**TC4:** Evaluate the outcomes and impacts of broadly defined activities	**NC5:** Evaluate the outcomes and impacts of well-defined activities

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Protection of society: Types of activity and responsibility to consider sustainable outcomes	**EC6:** Recognize the foreseeable economic, social, and environmental effects of complex activities and seek to achieve sustainable outcomes*	**TC6:** Recognize the foreseeable economic, social, and environmental effects of broadly-defined activities and seek to achieve sustainable outcomes*	**NC6:** Recognize the foreseeable economic, social, and environmental effects of well-defined activities and seek to achieve sustainable outcomes*
Legal, regulatory, and cultural: No differentiation in this characteristic	**EC7:** Meet all legal, regulatory, and cultural requirements and protect public health and safety in the course of all activities	**TC7:** Meet all legal, regulatory, and cultural requirements and protect public health and safety in the course of all activities	**NC7:** Meet all legal, regulatory, and cultural requirements and protect public health and safety in the course of all activities
Ethics: No differentiation in this characteristic	**EC8:** Conduct activities ethically	**TC8:** Conduct activities ethically	**NC8:** Conduct activities ethically
Manage engineering activities: Types of activity	**EC9:** Manage part or all of one or more complex activities	**TC9:** Manage part or all of one or more broadly-defined activities	**NC9:** Manage part or all of one or more well-defined activities
Communication and Collaboration: Requirement for inclusive communications. No differentiation in this characteristic	**EC10:** Communicate and collaborate using multiple media clearly and inclusively with a broad range of stakeholders in the course of all activities.	**TC10:** Communicate and collaborate using multiple media clearly and inclusively with a broad range of stakeholders in the course of all activities.	**NC10:** Communicate and collaborate using multiple media clearly and inclusively with a broad range of stakeholders in the course of all activities.
Continuing Professional Development (CPD) and Lifelong learning: Preparation for and depth of continuing learning. No differentiation in this characteristic	**EC11:** Undertake CPD activities to maintain and extend competences and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.	**TC11:** Undertake CPD activities to maintain and extend competences and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.	**NC11:** Undertake CPD activities to maintain and extend competences and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.
Judgement: Level of	**EC12:** Recognize complexity and	**TC12:** Choose appropriate	**NC12:** Choose and apply appropriate

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
developed knowledge, and ability and judgement in relation to type of activity	assess alternatives in light of competing requirements and incomplete knowledge. Exercise sound judgement in the course of all complex activities	technologies to deal with broadly defined problems. Exercise sound judgement in the course of all broadly-defined activities	technical expertise. Exercise sound judgement in the course of all well-defined activities
Responsibility for decisions: Type of activity for which responsibility is taken	**EC13:** Be responsible for making decisions on part or all of complex activities	**TC13:** Be responsible for making decisions on part or all of one or more broadly defined activities	**NC13:** Be responsible for making decisions on part or all of all of one or more well-defined activities
*Represented by the 17 UN Sustainable Development Goals (UN-SDG)			

INTERNATIONAL ENGINEERING ALLIANCE

Appendix A: Definitions of terms

Note: These definitions apply to terms used in this document.

Awareness: Recognizing the context and implications while using or applying what has been learned. The demonstration of awareness can be more varied than a demonstration of knowledge. Asking the right questions, including among the assumptions made, complying with or respecting when faced with a situation may be acceptable demonstrations.

Branch of engineering: a generally-recognized, major subdivision of engineering such as the traditional *disciplines* of Chemical, Civil, or Electrical Engineering, or a cross-disciplinary field of comparable breadth including combinations of engineering fields, for example Mechatronics, and the application of engineering in other fields, for example Bio-Medical Engineering.

Broadly-defined engineering problems: a class of problem with characteristics defined in section 4.1.

Broadly-defined engineering activities: a class of activities with characteristics defined in section 4.2.

Complementary (contextual) knowledge: Disciplines other than engineering, basic and mathematical sciences, that support engineering practice, enable its impacts to be understood and broaden the outlook of the engineering graduate.

Complex engineering problems: a class of problem with characteristics defined in section 4.1.

Complex engineering activities: a class of activities with characteristics defined in section 4.2.

Continuing Professional Development: the systematic, accountable maintenance, improvement and broadening of knowledge and skills, and the development of personal qualities necessary for the execution of professional and technical duties throughout an engineering practitioner's career.

Engineering sciences: include engineering fundamentals that have roots in the mathematical and physical sciences, and where applicable, in other natural sciences, but extend knowledge and develop models and methods in order to lead to applications and solve problems, providing the knowledge base for engineering specializations.

Engineering design knowledge: Knowledge that supports engineering design in a practice area, including codes, standards, processes, empirical information, and knowledge reused from past designs.

Engineering discipline: synonymous with *branch of engineering.*

Engineering fundamentals: a systematic formulation of engineering concepts and principles based on mathematical and natural sciences to support applications.

Engineering management: the generic management functions of planning, organising, leading and controlling, applied together with engineering knowledge in contexts including the management of projects, construction, operations, maintenance, quality, risk, change and business.

Engineering problem: is a problem that exists in any domain that can be solved by the application of engineering knowledge and skills and generic competences.

Engineering practice area: a generally accepted or legally defined area of engineering work or engineering technology.

Engineering speciality or specialization: a generally-recognized practice area or major subdivision within an engineering discipline, for example Structural and Geotechnical Engineering within Civil Engineering; the extension of engineering fundamentals to create theoretical frameworks and bodies of knowledge for engineering practice areas.

Engineering technology: is an established body of knowledge, with associated tools, techniques, materials, components, systems or processes that enable a family of practical applications and that relies for its development and effective application on engineering knowledge and competence.

Forefront of the professional discipline/branch[4]: defined by advanced practice in the specialisations within the discipline.

Formative development: the process that follows the attainment of an accredited education program that consists of training, experience and expansion of knowledge.

Knowledge: Recognizing and comprehending terminology, facts, methods, trends, classifications, structures, or theories. It involves learning as well as demonstrating what has been learned. The demonstration of a specific knowledge is invariably by means of work done based on that knowledge.

Manage: means planning, organising, leading and controlling in respect of risk, project, change, financial, compliance, quality, ongoing monitoring, control and evaluation.

Mathematical sciences: mathematics, numerical analysis, statistics and aspects of computer science cast in an appropriate mathematical formalism.

Natural sciences: Provide, as applicable in each engineering discipline or practice area, an understanding the physical world including physics, mechanics, chemistry, earth sciences and the biological sciences,

Practice area: *in the educational context:* synonymous with generally-recognized engineering speciality; *at the professional level:* a generally recognized or distinctive area of knowledge and expertise developed by an engineering practitioner by virtue of the path of education, training and experience followed.

Solution: means an effective proposal for resolving a problem, taking into account all relevant technical, legal, social, cultural, economic and environmental issues and having regard to the need for sustainability.

Subdiscipline: Synonymous with *engineering speciality*.

Substantial equivalence: applied to educational programs means that two or more programs, while not meeting a single set of criteria, are both acceptable as preparing their respective graduates to enter formative development toward registration.

Well-defined engineering problems: a class of problem with characteristics defined in section 4.1.

Well-defined engineering activities: a class of activities with characteristics defined in section 4.2.

[4] This should be distinguished from: **Forefront of knowledge in an engineering discipline/speciality**: defined by current published research in the discipline or speciality.

Appendix B: History of Graduate Attributes and Professional Competence Profiles

The signatories to the Washington Accord recognized the need to describe the attributes of a graduate of a Washington Accord accredited program. Work was initiated at its June 2001 meeting held at Thornybush, South Africa. At the International Engineering Meetings (IEM) held in June 2003 at Rotorua, New Zealand, the signatories to the Sydney Accord and the Dublin Accord recognized similar needs. The need was recognized to distinguish the attributes of graduates of each type of program to ensure fitness for their respective purposes.

The Engineers Mobility Forum (EMF) and Engineering Technologist Mobility Forum (ETMF)[5] have created international registers in each jurisdiction with current admission requirements based on registration, experience and responsibility carried. The mobility agreements recognize the future possibility of competence-based assessment for admission to an international register. At the 2003 Rotorua meetings, the mobility fora recognized that many jurisdictions are in the process of developing and adopting competence standards for professional registration. The EMF and the ETMF therefore resolved to define assessable sets of competences for engineer and technologist. While no comparable mobility agreement exists for technicians, the development of a corresponding set of standards for engineering technicians was felt to be important to have a complete description of the competences of the engineering team.

Version 1

A single process was therefore agreed to develop the three sets of graduate attributes and three professional competence profiles. An International Engineering Workshop (IEWS) was held by the three educational accord and the two mobility fora in London in June 2004 to develop statements of Graduate Attributes and International Register Professional Competence Profiles for the Engineer, Engineering Technologist and Engineering Technician categories. The resulting statements were then opened for comment by the signatories. The comments received called for minor changes only.

The Graduate Attributes and Professional Competences were adopted by the signatories of the five agreements in June 2005 at Hong Kong as version 1.1.

Version 2

A number of areas of improvement in the Graduate Attributes and Professional Competences themselves and their potential application were put to the meetings of signatories in Washington DC in June 2007. A working group was set up to address the issues. The IEA workshop held in June 2008 in Singapore considered the proposals of the working group and commissioned the Working Group to make necessary changes with a view to presenting Version 2 of the document for approval by the signatories at their next general meetings. Version 2 was approved at the Kyoto IEA meetings, 15-19 June 2009.

Version 3

Between 2009 and 2012 a number of possible improvements to the graduate attributes were recorded. During 2012 signatories performed an analysis of gaps between their respective standards and the Graduate Attribute exemplars and by June 2013 most signatories reported substantial equivalence of their standards to the Graduate Attributes. This will be further examined in periodic monitoring reviews in 2014 to 2019. In this process a number of improvements to the wording of the Graduate Attributes and supporting definitions were identified. The signatories to the Washington, Sydney and Dublin Accords approved the changes resulting in this Version 3 at their meetings in Seoul 17-21 June 2013. Signatories stated that the objectives of the changes were to clarify aspects of the Graduate Attribute exemplar. There was no intent to raise the standard. The main changes were as follows:

- New Section 2.3 inserted;
- Range of problem solving in section 4.1 linked to the Knowledge Profiles in section 5.1 and duplication removed;

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[5] Now the IEPA and IETA respectively.

- Graduate Attributes in section 5.2: cross-references to Knowledge Profile elements inserted; improved wording in attributes 6, 7 and 11;
- Appendix A: definitions of *engineering management* and *forefront of discipline* added.

Version 4
An agreement was signed at the IEAM 2015 for International Engineering Technicians. The Agreement for International Engineering Technicians (AIET) establishes an international benchmark standard for a practicing qualified engineering technician. An agreement now exists for technicians so that the standards included among Professional Competence Profiles for an engineering technician can be applied.

A UNESCO WFEO IEA Working Group was established in November 2019 following the renewal of the WFEO-IEA MoU and the Declaration on Engineering Education that was made in Melbourne at WEC2019. The Working Group has reviewed the Graduate Attributes and Professional Competences in order to ensure that they reflect contemporary values and employer needs, cover diversity and inclusion and ethics to reflect current and emerging thinking, address the intellectual agility, creativity and innovation required of engineering decision making as well as equip engineering professionals of the future to incorporate the practices that advance the United Nations Sustainable Development Goals (UN SDG). The main changes that resulted from the surveys, research, dissemination and consultation efforts during 2019-2021 were as follows:

- There were changes in all tables on Range of Problem Solving, Range of Engineering Activities, Knowledge and Attitude Profile, Graduate Attributes, and Professional Competence Profiles. These consisted of additions of new attributes as well as enhancements of the already existing ones. Some improvements in the wording and in clarity has also been a concern.
- Knowledge and Attitude Profile, Graduate Attributes, and Professional Competence Profiles Tables now refer to UN SDG. These references are intended to provide context for curriculum designers and for professional engineers seeking registration. They represent an internationally accepted example of how sustainability issues can be concisely understood and presented.
- Two rows on “Consequences, Judgement” at the end of Table 4.1 Range of Problem Solving that refer to Professional Competences are deleted as no differentiation was deemed necessary among the three categories.
- A new row of “Ethics, inclusive behavior and conduct” is introduced in the Knowledge Profile table, the name of which has been changed to the Knowledge and Attitude Profile.
- The breadth required of engineering education has been widened to emphasize digital literacy, data analysis, UN SDG, knowledge of relevant social sciences.
- Two rows of Graduate Attributes on “The Engineer and Society” and “Environment and Sustainability,” which have been based on the same knowledge profile have been combined under the heading “The Engineer and the World,” also supplementing the required knowledge profile.
- Knowledge and awareness of ethics, diversity, and inclusion have been emphasized.
- Critical thinking, innovation, emerging technologies, and lifelong learning requirements have been highlighted.
- The necessitated similar changes to Professional Competences have also been made.

The proposed revisions were introduced and discussed by member organizations through a series of extensive consultations, also through webinars organized by WFEO, in IEAM 2020 by IEA members, and via consultation web pages.

Document & Version Control

Version/Effective From	Summary of Changes	Approved	Minutes
2021.1 / Effective from 21 June 2021	Comprehensive review undertaken by joint working group to revise previous version (2013).	Approved by IEA Members (Signatories and Authorised Members) at IEAM June 2021 Use of WFEO & UNESCO Logos approved via email following meetings.	IEA21- IEA Forum Session

Delegation of
US Engineering State Board Members

05 February – 08 February 2024

US Delegation Programme Book

Contents

Dear Delegates,

Welcome to the UK! We are delighted that you have joined us for what we are sure will be an informative and productive mission.

The Prime Minister was pleased to announce the start of mutual recognition negotiations between NCEES and the Engineering Council during his press conference with President Biden at the White House in June 2023. In hosting this delegation, we're excited to provide an opportunity for you to learn about the UK's engineering sector and licensure process. Likewise, UK stakeholders will be interested to hear about processes in your respective states, the current challenges and opportunities you face, as well as avenues for closer cooperation. We believe this is an important moment for engineering on both sides of the Atlantic and we're here to support your conversations with the Engineering Council.

The three-day visit will include meetings with UK Government Ministers, senior executives from several prominent UK engineering companies, and leaders of the Engineering Council. These engagements will:

- Showcase the UK engineering sector across various disciplines.
- Outline the high standards of engineering education and experience across the United Kingdom.
- Provide an opportunity to learn about the Engineering Council, including their professional review process, continuing professional development, and relationship with discipline specific engineering institutes.
- Promote further cooperation between the UK and US engineering sectors.

In this briefing pack, you'll find logistical information for your itinerary, key contact information, and biographies and briefing notes for your meetings with government and industry. We've also included a brief overview with facts and figures on the UK's engineering sector. Finally, NCEES and the Engineering Council have provided an overview and the latest draft of the proposed mutual recognition agreement for your information.

Thank you again for your attendance on this delegation and willingness to share your perspective on the on the upcoming mutual recognition agreement.

Sincerely,

Gregor Catto

Senior Trade Policy Officer, British Embassy Washington

Accommodation and Information

Hotel	Club Quarters, Trafalgar Square 8 Northumberland Ave London, WC2N 5BY United States +1 (203) 905-2100 UK +44 (0) 20 7451 5800 https://clubquartershotels.com/london/trafalgar-square
Hospital	St. Thomas's Hospital Westminster Bridge Rd Lambeth, London SE1 7EH +44-20-7188-7188
Police	London Metropolitan Police Victoria Embankment Westminster, London SW1A 2JL +44-20-7230-1212
Airport	London Heathrow Airport The Compass Centre Nelson Road, Hounslow TW6 2GW +44 844 335 1801
US Embassy	U.S. Embassy London 33 Nine Elms Lane, London SW11 7US Switchboard +44 (0) 207 499 9000 (24 hours) Marine Post 1 +44 (0) 207 891 3484 (24 hours) Asst. Regional Security Officer: +44 (0) 207 891 3394 (business hours) Duty Officer Cell Phone: +44 (0) 785 079 2472 (24 hours)

UK Government Staff in Attendance

Gregor Catto *Senior Trade Policy Officer, British Embassy Washington*

Gregor oversees the UK Government's state level trade strategy in the US. He also leads work on the mutual recognition of professional qualifications, procurement, and market access. He was previously the agriculture policy advisor and joined the Embassy in 2020. From 2017 to 2020, Gregor served in the Office of US Congressman Robert Aderholt. He led on the several policy areas including appropriations, agriculture, trade, telecommunications and transportation. Before moving to the US, Gregor served as Parliamentary Researcher to John Glen, Member of Parliament for Salisbury. Gregor received his undergraduate degree in Theology from King's College London and studied abroad at UNC Chapel Hill. He can play the bagpipes but couldn't fit them in his luggage for the delegation.

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Grace Lowden *Executive Assistant to US Country Director and Director of Investment, North America, British Embassy Washington*

Grace supports the US Country Director and the Director of Investment within the Department for Business and Trade (DBT) and is based at the British Embassy Washington. Prior to joining the Embassy in June of 2022, Grace worked as a Litigation Paralegal at Sullivan & Cromwell where she specialized in Intellectual Property and Financial Institutions. Grace received her undergraduate degree in International Studies at American University and completed the London School of Economics General Course during her Junior year.

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Simon Gordon *Team Lead, Department for Business and Trade, North America Bilateral Trade Relations*

Simon Gordon is a team lead in the North America unit of the Bilateral Trade Relations directorate in the UK's Department for Business and Trade. He works on trade engagement with US states, covering areas including recognition of professional qualifications and government procurement. Simon previously worked in the Home Secretary's Implementation Unit at the UK's Home Office.

Before joining the UK Government, Simon served as assistant editor of an online publication in New York City, NY, and subsequently as speechwriter first to an ambassador to the UK and then to a backbench Member of Parliament.

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Miles Beckwith *Assistant Director at the Department for Business and Trade*

Miles spent his first years out of university working for Saatchi&Saatchi and Mediacom on a range of clients including Toyota, P&G and Tesco. He then began a career in government through the Civil Service Fast Stream. He became a senior policy advisor in DCMS for advertising. He is policy and engagement lead in the Financial, Professional and Business Services team in the Department for Business and Trade. In this role he has worked various trade issues such as driving uptake of the UK's memoranda with US states, mutual recognition of professional qualifications and designing and implementing sanctions on Russia.

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Sandra Ababio-Danso *Policy Officer at the Department for Business and Trade*

Sandra is a dedicated professional with a diverse background in project management, policy delivery and stakeholder management. With a strong educational foundation and extensive experience across various sectors, Sandra brings a unique blend of skills and expertise to her professional endeavours. She is currently a HEO policy officer and engagement lead in the Financial, Professional and Business Services team in the Department for Business and Trade.

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Delegation Programme

Time	Agenda	Information
Sunday 04 February		
	Delegates depart from the United States	
Monday 05 February		
07:00-10:30	Delegates arrive in London. Transit to **Club Quarters Trafalgar Square Hotel**.	Club Quarters Hotel Trafalgar Square, 8 Northumberland Ave, London WC2N 5BY
10:30	Meet Grace in CQ Hotel Lobby for optional walk to **Westminster Abbey**	
10:30-12:30	Optional visit to Westminster Abbey for early delegates – lunch at **Cellarium Café**	Cellarium Café And Terrace, Westminster Abbey, Deans Yard, The Sanctuary, Westminster SW1P 3PA
12:45	Delegates Regroup in Hotel Lobby	Club Quarters Hotel Trafalgar Square, 8 Northumberland Ave, London WC2N 5BY
13:00-14:00	Bus from CQ Hotel to **Old Oak Common**	BBVS JV Site Office, GWR Old Oak Common Rail Depot, London NW10 6ED

14:00-15:00	Old Oak Common Super-Hub	
15:00-16:00	Bus back to the hotel	Club Quarters Hotel Trafalgar Square, 8 Northumberland Ave, London WC2N 5BY
16:00-16:30	Freshen Up for Parliament tour & dinner	
16:30-16:45	Walk/ Taxi to **Palace of Westminster**	Cromwell Green Entrance The House Of Commons, London SW1A 0AA
16:45-17:00	Check In/ Security at Cromwell Green Entrance- **The House of Commons**	
17:00-18:00	Tour **Parliament** with Sir Conor Burns' staff – the Prime Minister's Trade Envoy to the United States for Regional Trade and Investment	
18:00-20:00	Welcome dinner hosted by Sir Conor Burns. Also attending: • Paul Bailey, Chief Executive Officer, Engineering Council • Katy Turff, Head of Policy and Standards and Deputy CEO, Engineering Council • Dr Dave Clark, International Affairs Manager, Engineering Council • Hugh Simpson, Chief Executive Officer, Architects Registration Board	Place of Westminster, Terrace Dining Room B

Tuesday 06 February		
7:00-8:00	Breakfast in Hotel	8 Northumberland Avenue, London WC2N 5BY
8:00-8:35	Walk to **Waterloo Train Station**	Waterloo Station York Rd, London SE1 7ND
8:35-8:58	Train to **Woking Station**	Woking Station Approach Woking Surrey GU22 7AE
9:00-9:30	Bus from Woking Station to **McLaren Technology Centre**	Mclaren Technology Centre Chertsey Rd, Woking GU21 4YH
9:30-10:00	McLaren Q&A with Engineers (w/ Refreshments in VIP Area)	
10:00-12:00	Tour of McLaren Technology Centre	
12:00-13:15	Bus to **Battersea Power Station**	26 Circus Road West, Nine Elms SW11 8DD
13:15-14:00	Lunch in **Battersea Arcade Food Hall** with Sam Youdan	
14:00-15:45	Tour Battersea Power Station *15:10 Lift 109 Chimney Tour for 11* *15:20 Lift 109 Chimney Tour for 11*	Two sets of group tickets booked.
15:45-16:00	Bus / Walk to **US Embassy**	33 Nine Elms Lane, London SW11 7US
16:00-17:00	Tour of US Embassy	
17:00-17:30	Drinks at **US Embassy Pub**	

17:30-18:00	Bus to **Club Quarters Hotel**	8 Northumberland Avenue, London WC2N 5BY
18:00-18:15	Freshen Up at Hotel	8 Northumberland Avenue, London WC2N 5BY
18:15-18:30	Walk/ Taxi to Dinner	Institution of Civil Engineers One Great George Street, London
18:30-20:00	Dinner with UK engineering industry, hosted at the **Institution of Civil Engineers**	One Great George Street, London
Wednesday 07 February		
08:30-09:30	Breakfast in Hotel	8 Northumberland Avenue, London WC2N 5BY
09:30-09:40	Walk to **Department for Business and Trade**	Old Admiralty Building Admiralty Place London SW1A 2DY United Kingdom
10:00-10:25	Meeting with Rt Hon Greg Hands MP, Minister for Trade Policy	Churchill Room, Department for Business and Trade
10:25-11:00	Walk to **Foreign, Commonwealth and Development Office**	King Charles Street London SW1A 2AH United Kingdom
11:00-11:10	Welcome remarks from David Rutley MP, Minister for the Americas, Caribbean and Overseas Territories.	

11:10-1300	Roundtable discussions between Engineering Council and National Council of Examiners for Engineering and Surveying	
13:00-13:30	Lunch	Room K1.33
13:30-14:00	Tour of FCDO	FCDO Fine Rooms
1400-16:00	Continued Roundtable at FCDO	Room K1.33
19:00-20:30	Internal Delegation Dinner at **Browns Covent Garden**	Browns Covent Garden 82-84 St. Martins Lane, Covent Garden, London, WC2N 4AG
Thursday 08 February		
	Delegates fly back to the United States	

NCEES

Engineering Council

Mutual Recognition Agreement between the National Council of Examiners for Engineering and Surveying (USA) and the Engineering Council (UK).

Background

Over the past few years, there has been increasing interest from the government, employers and professional associations in exploring the possibility of recognition of professional qualifications between the UK and the USA. This intention was announced in the UK Prime Minister's opening remarks in the Atlantic Declaration at the White House on Thursday 8 June 2023: *"An agreement to work towards mutual recognition of more professional qualifications in areas like engineering…"*

The Parties

The National Council of Examiners for Engineering and Surveying (NCEES) is a not-for-profit organisation with a mission to advance licensure for engineers and surveyors in order to safeguard the health, safety, and welfare of the public. NCEES members are the engineering and surveying licensure boards from all 50 U.S. states, the District of Columbia, Guam, Northern Mariana Islands, Puerto Rico and the U.S. Virgin Islands.

The Engineering Council (EngC) was incorporated by Royal Charter in 1981 to regulate the engineering profession in the UK and sets and maintains internationally recognised standards of professional competence and commitment for the public benefit. EngC holds the national register of over 228,000 engineers and technicians who have been assessed against these standards and awarded a professional title, for example Chartered Engineer.

Both organisations are founding members of the International Engineering Alliance (IEA) International Professional Engineers Agreement (IPEA).

Objectives and Principles

The intent of the agreement is to enable mobility for Chartered Engineers (UK) and Professional

Engineers (USA), reducing bureaucracy, duplication of assessment and costs where possible. Enabling mutual recognition provides increased opportunities for individuals and businesses for trade, knowledge sharing and co-operation. It will also enable skills shortages in critical areas to be addressed.

A leading global consulting firm with operations in the USA and the UK has stated recently:

'*There are many advantages to breaking down mutual recognition barriers. A key sectoral one we would immediately identify is the benefit of sharing skills and experience as both countries develop their green economies, where experienced engineers are in high demand to lead and work on decarbonisation and renewable energy projects.'*

The MRA is designed to ensure that the public, employers and their clients can have confidence and trust that registered/licensed engineers participating in the agreement have met globally recognised professional standards. It also respects discipline-specific and jurisdictional requirements of the US and UK participating organisations.

The Agreement

NCEES and EngC have exchanged information on standards and processes for the licensure and registration of professional engineers in each jurisdiction and developed an agreement to facilitate mutual recognition.

Despite differing systems of regulation, due diligence has confirmed that the UK and USA are well-aligned in terms of professional standards for registered/licensed engineers at the Chartered/Professional Engineer level. This is further assured by regular independent peer-review by the IPEA, confirming that the standard of professional competence in each jurisdiction is substantially equivalent to the globally recognised IPEA benchmark.

As a comparable benchmark of professional competence has been established, this allows significant exemptions from standard assessment processes to be considered. To facilitate this, it has been agreed that individual applicants should already have been awarded the IPEA's International Professional Engineer (IntPE) title in their home jurisdiction, providing further assurance of current professional competence and continuing professional development (CPD).

There is an opt-in mechanism so that the Licensing Boards of US States can participate, based on the model of 2023 agreement between the Architects Registration Board (ARB) and its US counterpart, the National Council of Architects Registration Boards (NCARB). The agreement also includes a regular review mechanism to optimise and safeguard the operation of the MRA across the UK and US States. Licensed Members of the Engineering Council, the UK Professional Engineering Institutions (PEIs), will also be participants in the agreement.

The Next Steps

Following final approval by NCEES and EngC governance, it is intended that the two parties will sign the agreement in the spring. This will be followed by a full launch, with opted-in state boards, at the NCEES National Meeting in August 2024.

David Cox

CEO NCEES

Paul Bailey

CEO Engineering Council

UK Engineering Background

- Engineering is a key sector for the UK and makes a significant contribution both socially and economically.
- The UK is a global powerhouse in engineering, boasting a rich history of innovation and a diverse array of engineering professions that contribute significantly to the nation's economic prosperity and technological advancement.
- The UK is renowned for its world-class civil engineering projects, including iconic structures like the Channel Tunnel, Crossrail, and the Thames Barrier. These services are also exported all over the world. For example two UK companies, Arup and Foster and Partners, are combining to design the Merced, Fresno, Kings/Tulare, and Bakersfield stations on the initial 171-mile segment of the California High-Speed Rail.
- The UK is a hub for precision engineering, with expertise in aerospace (Rolls Royce, BAE systems), automotive (Aston Martin, Jaguar Land Rover, MacLaren), and manufacturing industries (INEOS, GlaxoSmithKline).
- The UK is at the forefront of biomedical engineering, with leading research institutions and companies driving innovation in healthcare technologies.
- This is success is underpinned the flow of talent from the UK's top universities, such as Oxford, Cambridge and Imperial College London, and a large network of apprenticeships, now supported by a £50m government programme specifically for fostering the next generation of engineering talent.

Fig 1. Key economic metrics

GVA	£20.4bn
Annual growth 2021-22	9.90%
Employment	541,000
Registered businesses	85,500
Exports	£8.5bn
Imports	£4.5bn

- The subsector is fairly concentrated in large firms (250+ employees) which make up 0.4% of all employers, but provide 30% of employment and 38% of turnover in the subsector. Major firms include Atkins, Aecom, ARUP and Mott MacDonald.
- Engineering is growing at a much faster rate (9.9% growth in GVA per year) than the rest of the economy (4.3% growth in GVA per year.) Jobs have also outstripped the UK average, rising 3.9% in 2021-22 compared to the 2.7% UK average, reflecting the dynamism of the sector.
- The engineering profession is more regionally diverse than other services professions. (see Fig. 2.) 80% of engineering GVA is generated outside of London, compared to 65% for the rest of the professional and business services economy. This reflects the UK's considerable investment and expertise in renewable energy, such as solar and wind farms, as well as advanced manufacturing at regional sites.

Top 5 regions (2021 GVA, % of UK)

London	£4.1bn, 20%
South East	£3.7bn, 18%
East of England	£2.8bn, 14%
Scotland	£2.1bn, 10%
North West	£1.9bn, 9%

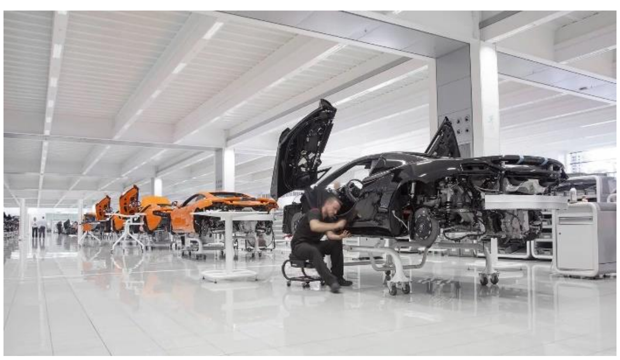
Site Visits

Old Oak Common

Old Oak Common is a new super-hub set to be the best-connected and largest new railway station ever built in the UK. The station will have fourteen platforms, a mix of six high-speed and eight conventional service platforms, with an 850m-long station box, big enough to fit 6,300 Routemaster buses inside.

Old Oak Common will become one of the country's most vital transport super-hubs. The station is expected to be one of the busiest railway stations in the country with high-speed rail services across the UK, and access to central London and Heathrow via the Elizabeth line. Passengers will also be able to travel to Wales and the South West. Its construction and operation will also drive the regeneration of the area around it in West London.

McLaren Technology Centre



McLaren is one of the most successful teams in the history of Formula One. Founded in 1963 by Bruce McLaren, the team have won 183 grand prix and 20 World Championships. Their cars have been piloted by the greatest drivers in the sport's history including James Hunt, Ayrton Senna, Alain Prost, Nikki Lauda, Fernando Alonso, and Lewis Hamilton.

The McLaren group now runs racing teams in Formula One, Indy Car, Formula E, and Extreme E. The McLaren Technology Centre also houses McLaren Automotive, production facility for some the most advanced road cars in the world. McLaren's mission is to create breathtaking performance road cars that deliver the most thrilling driving experiences imaginable. Utilizing their racing expertise they aim to pioneer new technology which breaks industry norms and asks: 'how can we do it better?'

Battersea Power Station

Starting operation in the 1930s, Battersea Power Station was a critical power supply for the capital. At its peak, Battersea Power Station was supplying a fifth of London's electricity, including to landmarks such as the Houses of Parliament and Buckingham Palace. It was closed in 1983 but the iconic structure on the Southbank was Grade II listed by Historic England.

In 2012, the 42-acre site was purchased with plans drawn to restore and renovate the structure. Opened again to the public in October 2022, Battersea Power Station now contains homes, shops, cafes, restaurants, cultural venues and open space for London.

UK Government Meetings

Rt Hon Sir Conor Burns MP - Trade Envoy to the United States for Regional Trade and Investment

The Rt. Hon. Sir Conor Burns MP was appointed the Prime Minister's Trade Envoy to the United States for Regional Trade and Investment. Previously he was Minister of State for Northern Ireland. He was also Minister of State for Trade Policy between July 2019 and May 2020. Elected to the House of Commons in 2010 he has held a number of Parliamentary Private Secretary positions in the Northern Ireland Office (2010-12), Treasury and BEIS. He served as PPS to the Rt. Hon. Boris Johnson as Foreign Secretary between 2017-18.

Conor was born in Belfast in 1972 and went to Park Lodge Primary School on the Antrim Road before his family moved to Hertfordshire. He read Modern and Politics at the University of Southampton where he later served on the City Council. Prior to his election to Parliament he had a career in Financial Services and Communications.

Rt Hon Greg Hands MP - Minister of State for Trade Policy

Greg Hands was appointed Minister of State for Trade Policy in the Department for Business and Trade on 13 November 2023. He was also appointed Minister for London on 13 November 2023. He was previously Minister without Portfolio at the Cabinet Office, Minister of State at the Department for International Trade and a Minister of State at the Department for Business, Energy & Industrial Strategy. He was elected the Conservative MP for Hammersmith and Fulham in 2005, and for Chelsea and Fulham in 2010.

Greg was educated at a variety of state schools in the UK and the USA, but principally at Dr Challoner's Grammar School, Amersham, before going on to study Modern History at Cambridge University, with time spent in the modern languages and oriental studies faculties graduating with first class honours. Greg spent 8 years working on trading floors in London and New York trading and marketing fixed income derivatives.

David Rutley MP – Minister for the Americas

David Rutley was appointed as a Parliamentary Under Secretary of State at the Foreign, Commonwealth & Development Office on 27 October 2022. He was previously Parliamentary Under Secretary of State (Minister for Welfare Delivery) at the Department for Work and Pensions. He was a Government Whip from 15 June 2017 to 16 September 2021. He previously served as Parliamentary Under Secretary of State at the Department for the Environment, Food and Rural Affairs from 3 September 2018 to 27 July 2019.

David received a BSc (Econ) from the London School of Economics and a MBA from Harvard Business School. David was first elected to Parliament in the 2010 General Election as the Conservative MP for Macclesfield. He has previously served on the Treasury Select Committee and as Parliamentary Private Secretary to several Secretaries of State.

David spent most of his career in business and worked as a senior executive in major companies, including Asda, PepsiCo International, Halifax General Insurance and Barclays. From 1994 to 1996 he worked as a Special Adviser at the Treasury, the Cabinet Office and the Ministry of Agriculture.

Engineering Council Biographies

	**John Chudley** *Engineering Council Chair* John has held various positions in academia, including Provost of Warsash Maritime Academy, Executive Dean of the Marine and Technology Faculty at Southampton Solent University and Head of the Institute of Marine Studies and Mechanical and Marine Engineering Departments at the University of Plymouth. He remains a Visiting Professor to both Plymouth and Solent, and he honed his skills as a Mechanical Engineer apprentice before progressing to higher education, completing a PhD in Marine Technology. John has also been employed with the Civil Service, positions include being a Director of the Learning and Skills Council and the National Apprenticeship Service. John has also acted as a Director and Board Member to a number of companies and organisations. At present he is a Council Member of the Royal National Lifeboat Institution and a Board Member and Chair of the Engineering Council.
	**Paul Bailey** *Chief Executive Officer* Paul is Chief Executive Officer at the Engineering Council, the UK regulatory body for the engineering profession. Prior to his appointment as CEO, Paul held the position of Deputy CEO & Operations Director for over eight years and was also previously Deputy CEO at the Royal Aeronautical Society. With a degree in Physics and a background in aerospace and aviation, Paul is a member of both the Institute of Physics and the Royal Aeronautical Society.

	**Katy Turff** *Head of Policy & Standards and Deputy CEO* Katy joined the Engineering Council in 2011 as Head of International, with over twenty years' experience working for professional engineering institutions. In 2016 she led the newly formed Professional Standards department which brought together the international and standards teams, embedding a focus on international alignment and recognition into core business. As Head of Policy & Standards and Deputy CEO, Katy continues to have strategic oversight of the Engineering Council's international recognition and standards work. This includes development of a contextualised version of UK-SPEC for engineers and technicians working on higher-risk buildings. Her brief also covers the strategic themes of engineering & society, and diversity and inclusion in the profession. Katy is Chair of the International Engineering Technologists Agreement and a member of the Governing Group of the International Engineering Alliance.
	**Dr David Clark** *International Affairs Manager* Dave has extensive experience in not-for-profit, professional body and corporate sectors. Since 2016, he has been International Affairs Manager at The Engineering Council, managing the work of securing and maintaining the international comparability of the UK registration standards. Previously Dave was Head of International Development at the Royal Society of Chemistry, developing and managing partnerships to support UK scientists through international collaborative programmes. Dave has also worked for 19 years in industry, with the US analytical instrument company PerkinElmer Inc in a variety of scientific and technical roles. He has a PhD in Physical Organic Chemistry from King's College, London and was elected a Fellow of the Royal Society of Chemistry in 2008.

ICE Dinner Biographies

	**Séan Harris OBE** *Deputy Director General and Director membership, Institution of Civil Engineers (ICE)* Séan was appointed director of membership in August 2015 and has been an engineer for over 30 years. Séan is responsible for overseeing the creation and delivery the membership proposition. This includes programmes to inspire students to study and practice civil engineering, the accreditation of civil engineering degrees, the Initial Professional Development of graduates, Professional Reviews for the technician, incorporated and chartered qualification, and Continuing Professional Development and delivery of lifelong learning.
	**Stephen Marcos Jones** *Group CEO, The Association for Consultancy and Engineering (ACE)* Stephen led significant change across this sector, spearheading a cross-industry response on issues such as environmental regulation and promoting the sector's opportunity to deliver decarbonisation in pursuit of Net Zero, while helping to articulate a vision for a sustainable future for the sector. Prior to his appointment, he held a number of senior leadership positions at OGUK, the representative body for the UK offshore energy industry, where he grew commercial revenues for the association through a robust member engagement and events programme. He also led a campaign to drive efficiency into the industry, through the optimisation of procurement practices across the entire supply chain.

Sarah Prichard

Managing Director UK Buildings, Hong Kong & China, Buro Happold

Sarah is one of the practice’s leaders in the field of building vibrations and dynamics, and consults widely in this area, particularly on mixed use, transport stations, sports structures, hospitals and laboratories projects.

During her time at Buro Happold, Sarah has developed a passion for the delivery of multidisciplinary projects across several sectors, ensuring a high quality of delivery and client satisfaction either as the project leader or director.

Sarah spent three years in Qatar leading the supervision of the engineering works on Phase 2 and Phase 3 of the Msheireb Downtown Doha Project, formerly known as the Heart of Doha. This project intends to entirely recreate the centre of Doha in a sustainable and sympathetic way for the 21st century.

Sam Youdan

Director, Buro Happold

Sam has a Master of Engineering degree from the University of Cambridge and is a Fellow of the Institution of Civil Engineers.

His work focuses on redevelopment projects in central London, for example, Battersea Power Station, Marcol House and the ME Hotel, making him an expert in refurbishment projects. A key member of the Battersea Power Station team, he helped deliver the engineering for the repurposing and refurbishment of this iconic Grade II listed project.

Sam led the heritage and heavy refurbishment design and site works, including the successful dismantling and re-construction of the award-winning chimneys.

	**Mike McNicholas** *MD of Infrastructure UK & Europe, Atkins Realis* Mike was the engineering Project Director for the London 2012 Olympic and Paralympic games. Atkins is one of the world's most respected design, engineering and project management consultancies, employing over 18,300 people across the UK, North America, Middle East and Africa, Asia Pacific and Europe**.**
	**Dr Simon Harrison** *Group Head of Strategy, Mott MacDonald* Dr Simon Harrison is a leading voice in public policy around engineering's implications in energy transition and decarbonisation. He also holds senior positions in Mott MacDonald, developing its global strategy and developing its scope and expertise in both domestic and international markets. He has made major contributions to UK energy policy and has chaired important national committees and professional groups advising government on this area of great strategic importance, often providing important input to Academy outputs. He has served two terms as Vice President of the Institution of Engineering and Technology, with contributions in strategy, membership, professional development, and knowledge solutions.

	**David Riches** *Deputy Director Financial, Professional and Business Services, Department for Business and Trade* David has operated as a senior leader with one of the UK's leading Trade Associations, as a CEO of a regional trade & investment promotion organisation and a Trustee with a national charity. Executive Director, British Chambers of Commerce Chief Executive, East of England International Director, North America, Think London (now part of London & Partners) Director, Strategy & Corporate Development, Cable & Wireless Senior Consultant, EY Strategic Advisory Services

Delegate Biographies

	**Laura Sievers, P.E.** *President, National Council of Examiners for Engineering and Surveying (NCEES)* A resident of LeMars, Iowa, Sievers has served as a member of the Iowa Engineering and Land Surveying Examining Board since 2016. She served as chair of the NCEES Committee on Examinations for Professional Engineers in 2021–22 and as chair of the Committee on Examination Audits in 2017–19. She served as board liaison to the Committee on Examinations for Professional Engineers and the Special Committee on Bylaws in 2022–23.
	**David Cox** *CEO, National Council of Examiners for Engineering and Surveying (NCEES)* Cox previously served as executive director of the Kentucky State Board of Licensure for Professional Engineers and Land Surveyors from 2001 to 2018. During this time, he was also active in the work of NCEES. He served 10 terms on the organization's Committee on Finances, including two as chair. He also served as a member of the Committee on Member Board Administrators, the Advisory Committee on Council Activities, the Governance Task Force, and the Licensure Qualifications Oversight Group. In 2014, NCEES awarded him the Meritorious Service Award in recognition of his contributions to the organization and the professions of engineering and surveying. Cox holds a Bachelor of Science degree in accounting from the University of Kentucky and is licensed as a certified public accountant in Kentucky.

Rossana D'Antonio, P.E.
Board Member, California Board of Professional Engineers, Land Surveyors, and Geologists

Rossana D'Antonio serves as Deputy Director for Los Angeles County Public Works. She provides executive leadership for the development of sustainable communities, resilient housing, private sector commercial marketplaces and jobs, and emergency management.

A 30-year Department veteran, Rossana has extensive background in many disciplines of engineering, management, operations and business processes. She received her Bachelor of Science Degree in Civil Engineering from Fresno State and an MBA with emphasis in leadership and organizational development from Pepperdine University. In 2020, Rossana was appointed by Governor Gavin Newsom to the California Board of Professional Engineers, Land Surveyors, and Geologists where she currently works to ensure protection of the public and the environment with competent and ethical professional services. Currently, she serves on the ASCE Board of Direction and the Government Engineers Council.

David Jackson
Executive Director, Maine State Board of Licensure for Professional Engineers

David Jackson has served as the Executive Director of the Maine State Board of Licensure for Professional Engineers since 2012. He sat on the board as the public member from 2008 to 2010. Jackson is an attorney licensed in Maine and Massachusetts. He previously served as an Assistant District Attorney in Kennebec and Somerset Counties in Maine, and while in private practice focused on criminal defence and litigation. He received his B.A. in English from Brigham Young University and his J.D. from the Massachusetts School of Law.

Jim Kelly, P.E.
Professional Engineers Board Chair, Virginia Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects (APELSCIDLA)

A resident of Williamsburg, Virginia, Kelly has served as a member of the Virginia Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers, and Landscape Architects since 2017. He has also served as chair of the Virginia board. Kelly has served as a member of the NCEES Southern Zone Site Selection Committee.

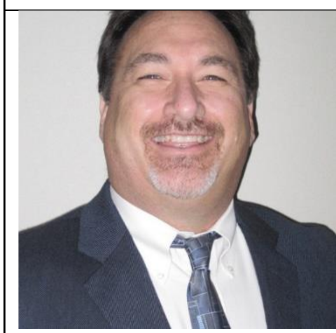
Kelly graduated from the United States Merchant Marine Academy with a bachelor's degree in marine engineering systems and from the Florida Institute of Technology with a master's degree in engineering management. As a licensed professional engineer, he has worked as the manager of crane engineering and quality at Newport News Shipbuilding.

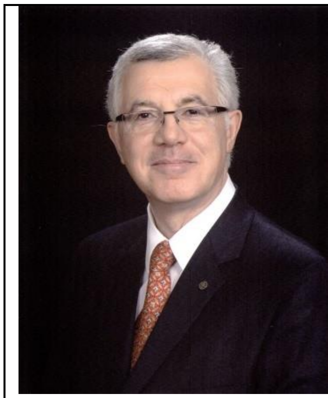
Dr Lance Kinney, P.E.
Executive Director, Texas Board of Professional Engineers and Land Surveyors (Austin, TX)

Kinney has served the board in several positions for more than seven years, providing guidance to agency programs and activities, including legislative, rule and policy issues.

Before joining the Board of Professional Engineers, Kinney worked nearly a dozen years in the semiconductor industry. He holds a bachelor's degree from The University of Texas at Austin, a master's from Texas State University and is currently a doctoral student at The University of Texas. He has lectured as an adjunct professor in the Engineering and Technology Department at Texas State and the Electronics and Advanced Technologies Department at Austin Community College.

	**Patty Mamola, P.E.** *Executive Director, Nevada Board of Engineers and Land Surveyors* Patty Mamola served as the first female president of the National Council of Examiners for Engineering and Surveying, also known as NCEES. Mamola has been a member of the Nevada State Board of Engineers and Land Surveyors since 2006. A resident of Reno, Nevada, and licensed as a professional engineer in Nevada since 1993, Mamola has focused her career on transportation, construction management, and analytical problem solving. She is one of the founding principals of the professional engineering firm Bowling Mamola Group. Mamola is a graduate of South Dakota School of Mines and Technology, where she earned a bachelor's degree in civil engineering. She is an active member of the American Public Works Association, the National Society of Professional Engineers, and the Women's Transportation Seminar.
	**Darren Mickler** *Executive Director, Georgia Professional Engineers and Land Surveyors Board* Darren Mickler is the Executive Director of the newly created Georgia Professional Engineers and Land Surveyors Board. Prior to accepting the position with the newly created Board, Mr. Mickler served as Executive Director for the Georgia Board of Registration for Professional Engineers and Land Surveyors and many other professional licensing Boards under the umbrella agency of the Georgia Secretary of State's Office for 21 years. Mr. Mickler was a Plant Manager for YKK(USA)INC in the PPD plant producing textured yarn for zipper tape. Prior to that, he was the Technical Engineer for the production of polyethylene terephthalate (PET) for the plastic zipper and zipper tape making processes. This was one of the last batch process polymerization plants in the United States. Mr. Mickler holds an ABA from Middle Georgia College and a BBA in Management from Georgia College and State University.

	**Judi Miller** *Consumer Member, Maryland PE Board, Registered Architect* The professional career of Judith A. Miller, AIA, CDT, Principal and founder, encompasses over twenty-five years of experience in Architecture and Engineering for a wide array of residential and light commercial projects. Her extensive experience in the field of multifamily and senior housing, gives her an advantage in finding the most appropriate solution to these types of projects. Prior to founding ABD, Ms. Miller was a Senior Associate at Design Collective Inc. where she managed the residential studio for 10 years. She is currently a registered Architect in Maryland, Delaware, Virginia and the District of Columbia.
	**Ric Moore, P.L.S.** *Executive Officer, California State Board of Technical Registration* Moore is a Professional Land Surveyor with more than 30 years of project management and land surveying experience. He has specific expertise in boundary, A.L.T.A. and topographic surveying, utility mapping, right-of-way, public works, commercial, residential, and construction staking projects. He has also been responsible for managing Geographic Information System (GIS) implementations for several public agencies throughout Southern California. Currently serving as the Executive Officer for the Board for Professional Engineers, Land Surveyors, and Geologists (BPELSG), appointed in June 2011, and previously serving as the Senior Land Surveyor Registrar for the Board from 2007-2011. He served four terms as the Western Zone Secretary for National Council of Examiners for Engineers and Surveyors (NCEES) from 2013-2021 and was a former member of the California Land Surveyors Association (CLSA) from 2002-2012.

	**Dr Sina Nejad, P.E.** *Chair, Texas Board of Professional Engineers & Land Surveyors* Sina Nejad of Beaumont, Texas, is founder and president of Sigma Engineers, Inc. He received both his bachelor and master degrees in Engineering from Lamar University. He is a structural engineer licensed to practice engineering in Texas and Province of Alberta, Canada, and an excepted engineer approved to engage in the practice of architecture in Texas. Nejad's community involvement includes serving as the chairman of both Planning and Zoning Commission and the Building Code Board of Adjustment & Appeals for the City of Beaumont, member of the Lamar University Civil Engineering Advisory Council, member of the Lamar University Foundation Board of Directors, and the Christus St. Elizabeth Hospital Advisory Board. He is a member and the past president of the symphony of Southeast Texas, past president and member of the Anayat House, member of the Beaumont Chamber of Commerce, and named Small Businessperson of the Year 2004 by the Beaumont Chamber of Commerce.
	**Kate Nosbisch** *Executive Director, Virgina Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects (APELSCIDLA)* Nosbisch has been executive director for the Virginia Board of Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects since 2008. Previously, she was deputy executive director for the Virginia Board of Medicine. She holds a bachelor's degree in business/communications and a master's degree in professional leadership from Carlow University.

	**Zana Raybon** *Executive Director, Florida Board of Professional Engineers* Zana Raybon has served as the Executive Director of the Florida Board of Professional Engineers for the past 15 years. She has a B.S. in Political Science from Florida State University and a A.S. in Legal Studies from Tallahassee Community College.
	**Andrew Ritter** *Executive Director, North Carolina Board of Examiners for Engineers and Surveyors* Andrew Ritter has been with the North Carolina Board of Examiners since 1993 and has been the Executive Director since 2001. He has also been an investigator for the Board and the Supervisor of Investigations. He is currently serving as the Finance Committee Chair for the National Council for Engineering and Surveying (NCEES). He has served as a guest lecturer on ethics and license promotion at NCSU, Duke, Campbell and UNC – Charlotte and served on engineering program advisory boards for North Carolina A&T and UNC-Wilmington. He was selected to proctor the first exams given in Saudi Arabia and Taiwan and assisted in developing licensure models for several foreign countries including Japan, the United Arab Emirates and the Commonwealth of the Bahamas .

	**Scott Sayles, P.E.** *Board Vice Chairman, Arizona State Board of Technical Registration* Scott Sayles is an experienced Professional Civil Engineer with over 23 years of experience with a passion for design, construction, and problem solving. Hailing from Kingman, Arizona, he later studied at the University of Arizona where he earned a Bachelor of Science in Civil Engineering. Scott has contributed significantly to the field of engineering through his work for WSP and Parsons on complex engineering projects in the United States, as well as internationally. He is the Vice Chairman of the board on the Arizona Board of Technical Registration where he also serves as the Civil Engineering Board Member. Scott is deeply engaged in volunteer work, driven by a desire to provide others with enhanced engineering opportunities. In his leisure time, he finds joy in disc golf and actively participates in volunteering with his sons' scouting troop. He has been happily married to his high school sweetheart, a chemical engineer, for 23 years. Together, they are proud parents of two sons.
	**Judith Stapley** *Executive Director, Arizona State Board of Technical Registration* Judith Stapley has worked in State Government for the past nine years. She accepted the position of Executive Director at the Arizona State Board of Technical Registration in May of 2021. Her education includes an Undergraduate Degree in Public Administration and a Master's Degree in Public Safety Administration and Emergency Management, specializing in mass fatality incident response. In her current position, she actively participates in administrative rulemaking, administrative law, policy implementation, and navigating the political environment surrounding public organizations, specifically regulatory boards. She is active in several state and national organizations and serves on the Interorganizational Council on Regulation (ICOR).

	**Josh Twitty** *Advocacy and External Engagement Strategist, National Council of Examiners for Engineering and Surveying (NCEES)* Within his role, Twitty addresses threats against licensure by supporting state engineering and land surveying boards in their legislative efforts. He facilitates NCEES's advocacy agenda by analysing legislation, coordinating ARPL efforts with partner organizations, and guiding internal and external communication efforts to raise public awareness of responsible licensure. Prior to joining NCEES, Josh worked for the Arkansas Bureau of Legislative Research as a Legislative Analyst. In this role, he tracked bills during session, conducted bill presentations for committees, and drafted bills for committee legislative members. Josh earned his Bachelor of Arts in Criminal Justice and Legal Studies from the University of Arkansas at Little Rock and a Master of Public Affairs from the University of Missouri. Josh is also an Air Force Veteran.
	**Jon Wilbeck** *Executive Director, Nebraska Board of Engineers and Architects* Jon Wilbeck is the Executive Director of the Nebraska Board of Engineers and Architects. He has been with the Board for 14 years, the first two years as the board's Compliance Officer. Prior to joining the Nebraska Board, Jon worked at architectural firms in Lincoln, Nebraska and Seattle, Washington in project administration and business development. A native of Minden, Nebraska, Jon is also an eight-year veteran of the U.S. Navy. Jon has also served on NCEES' Member Board Administrator and Uniform Procedures and Legislative Guidelines committees.

Notes

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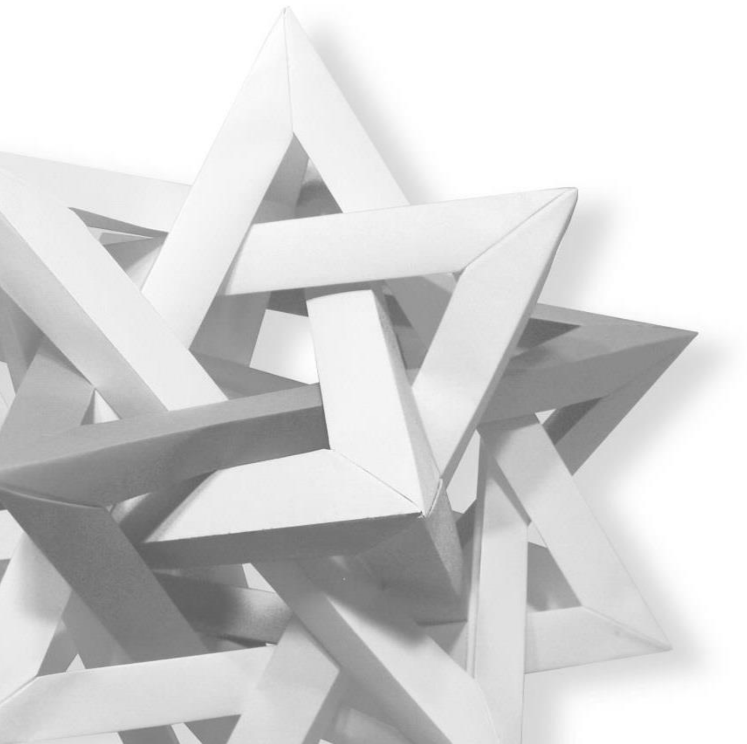
APPENDIX D

Engineering Council Introduction



Dr Dave Clark – International Affairs Manager, EngC

7 February 2023

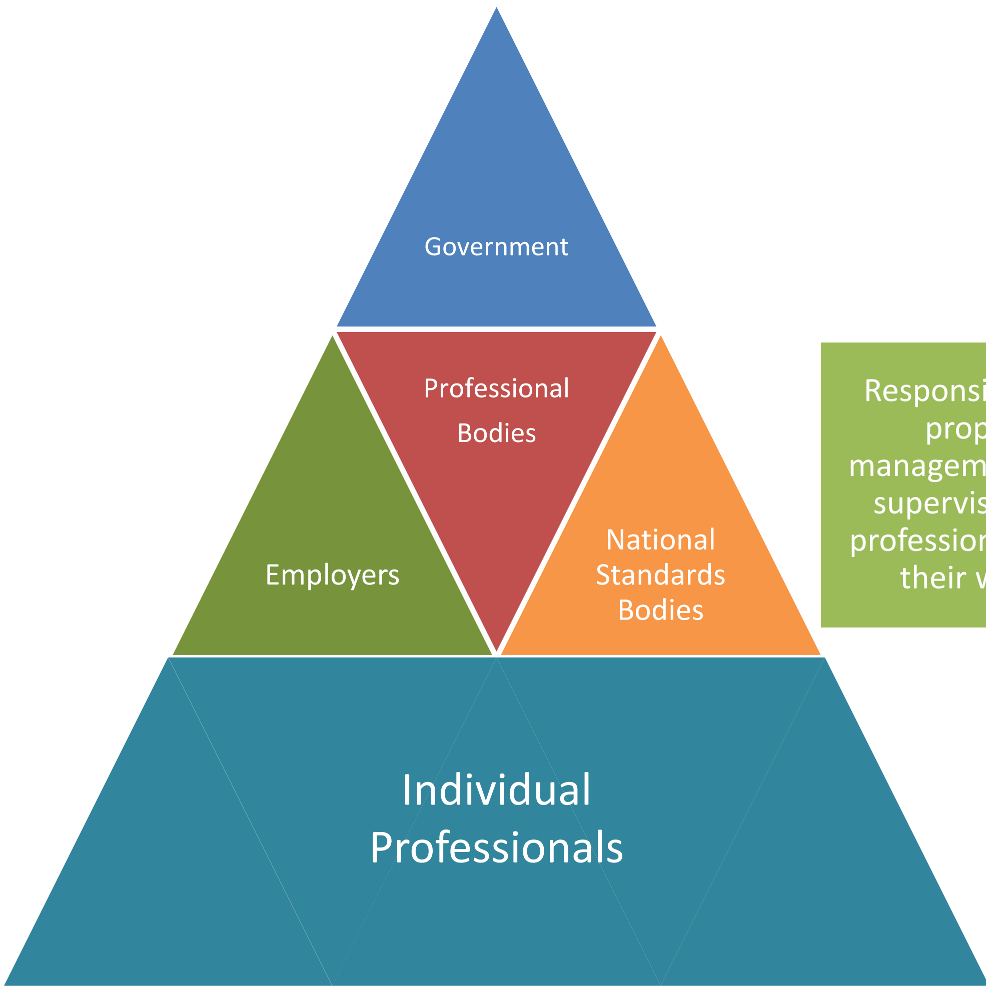
About the Engineering Council

- UK regulatory body for the engineering profession, operating under a Royal Charter since 1964
- Self-regulation via a formal agreement with the Government via the Privy Council, for the benefit of society
- Sets and maintains standards of professional competence, and for degree qualifications and apprenticeships demonstrating underpinning knowledge, understanding and skills.
- Holds the UK register of professional engineers (legally protected titles):
  - Chartered Engineers (CEng)
  - Incorporated Engineers (IEng)
  - Engineering Technicians (EngTech)
- Licenses 39 Professional Engineering Institutions
- Associated with 18 Professional Affiliates
- Over 230,000 registrants worldwide
  - 19.6% professionally registered engineers are overseas

Engineering Council

Context: the UK Regulatory framework

**Professional Regulation exists to protect consumers and society at large.
In the UK it is part of a spectrum of regulatory mechanisms.**



Legislates for the public interest

Responsible for proper management and supervision of professionals and their work

Set standards of competence and professional conduct, set examinations award titles, keep registers

Sets product standards and standards of practice

Take personal responsibility for their own performance, maintaining their competence and high standards of professional conduct.

Reserved areas of work

- Reserved areas of work – by statute, regulation or industry standards to licensed or otherwise approved persons

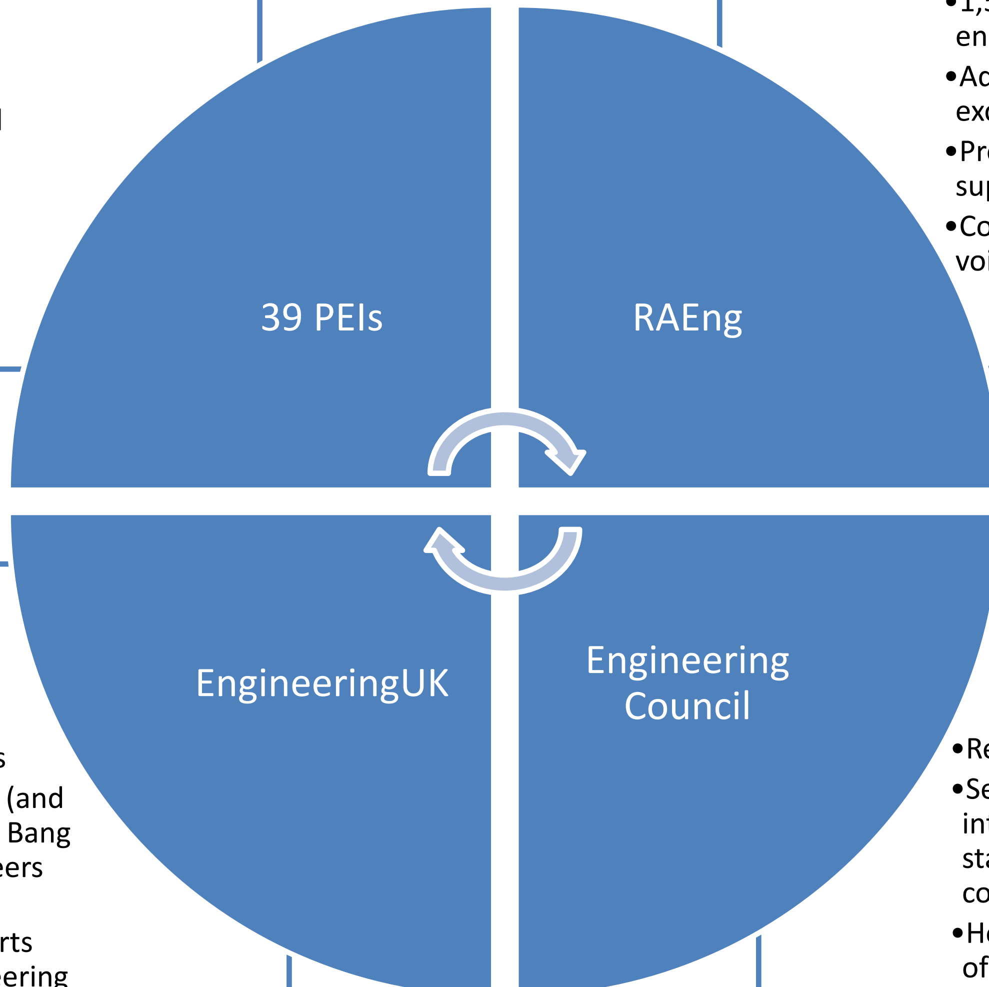
- Aircraft Maintenance (**EASA** Part 66, Annex III to European Commission Regulation **2042/2003**)
- Electrical Safety in Buildings (**Building Regulations Part P**)
- Gas Fitting (**Gas Safety (Installation & Use) Regulations 1998**, **Gas Safe Register**)
- Non-destructive Testing (**ISO 9712: 2012** Non-destructive testing – Qualification and certification of NDT; **Personnel Certification in Non-destructive testing PCN**)
- Pressure Vessel Design (**The Simple Pressure Vessel (Safety) Regulations 1991**)
- Quarry Management (**The Quarries Regulations 1999**, Health & Safety Executive)
- Railway Signalling (**IRSE Licensing Scheme**)
- Reservoir Design and Inspection (**Reservoirs Act 1975**, Environment Agency)
- Ships Officers (The Fishing Vessels **(Certification of Deck Officers and Engineer Officers) (Amendment) Regulations 1998**, **Maritime and Coastguard Agency**)
- Vehicle Maintenance (**DVSA** Authorised Examiner)
- Inspection and Maintenance of Highways Structures (**The Highways Agency Design Manual for Roads and Bridges** Volume 3 Highway Structures: Inspection and Maintenance)
- Structural Engineers Register Scotland (The Building (Scotland) Act 2003 **Structural Engineers Register**)
- **Care of Cathedrals Measure 2011**
- **Road Tunnel Safety Regulations 2007**
- **Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015**
- Higher-Risk Buildings (**Building Safety Act 2022**)

Engineering Council

Our partners at the heart of the engineering profession

- 500,000 members
- Promote and advance specific engineering discipline
- Assess for professional registration
- Accredit educational programmes
- Maintain professional standards (CPD)
- Provide policy advice

- 1,500 Fellows across all engineering sectors
- Advances and promotes excellence in engineering
- Provides analysis and policy support to Government
- Coordinates a unified policy voice for engineering



- Promotes engineering and engineering careers
- Focuses on the learner (and influencers) via The Big Bang and Tomorrow's Engineers
- Periodically produces statistically-based reports into the state of engineering in the UK
- Coordinates a unified voice for engineering to the public

- Regulatory body
- Sets and maintains internationally recognised standards of professional competence and ethics
- Holds the national registers of over 229,000 EngTech, IEng, CEng and ICT*Tech*

UK Professional Engineering Institutions

icme INSTITUTE OF CAST METALS ENGINEERS

soe Society of Operations Engineers

IET The Institution of Engineering and Technology

IRSE INSTITUTION OF RAILWAY SIGNAL ENGINEERS

energy INSTITUTE

iED support inspire achieve

The Royal Institution of Naval Architects

IPEM

IChemE Institution of Chemical Engineers

THE SOCIETY OF ENVIRONMENTAL ENGINEERS

ILP INSTITUTION OF LIGHTING PROFESSIONALS

Institute of Measurement and Control

IHE INSTITUTE OF HIGHWAY ENGINEERS

IAgrE

EST. 1918

IHEEM

Institute of Water

ROYAL AERONAUTICAL SOCIETY

IOM3

The Welding Institute

CIWEM

BINDT THE BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING

ni

Institute of Acoustics

bcs The Chartered Institute for IT Enabling the information society

ice Institution of Civil Engineers

THE CHARTERED INSTITUTION OF HIGHWAYS & TRANSPORTATION

UBIQUE QUO FAS ET GLORIA DUCUNT

The Institution of Structural Engineers

iphe

IOP Institute of Physics

Institution of MECHANICAL ENGINEERS

Institute of Marine Engineering, Science & Technology IMAREST

CIBSE

idgtE

IGEM Institution of Gas Engineers & Managers

Engineering Council

International accords and agreements

- Founding signatory of the IEA Washington, Sydney and Dublin Accords
- Founding member of the International Professional Engineers Agreement (IPEA), International Engineering Technologists Agreement (IETA) and Agreement for International Engineering Technicians (AIET)
- UK National Member of FEANI (over 16,000 EUR ING)
- Member of ENAEE – awarding EUR-ACE recognition
- Member of ENGINET
- Bilateral Mutual Recognition Agreements – OE (Portugal), Engineers Ireland, Engineering New Zealand, Idaho Board, Kuwait Society of Engineers, AIPE and AQPE (Spain), KIVI (Netherlands)

Engineering Council

Governance

The Engineering Council is required to satisfy the objects stated in its Charter, as further defined by its Bye-laws and Regulations. The Board sets a three-five year strategy and maintains the associated vision and mission in order to achieve this.

Our Mission

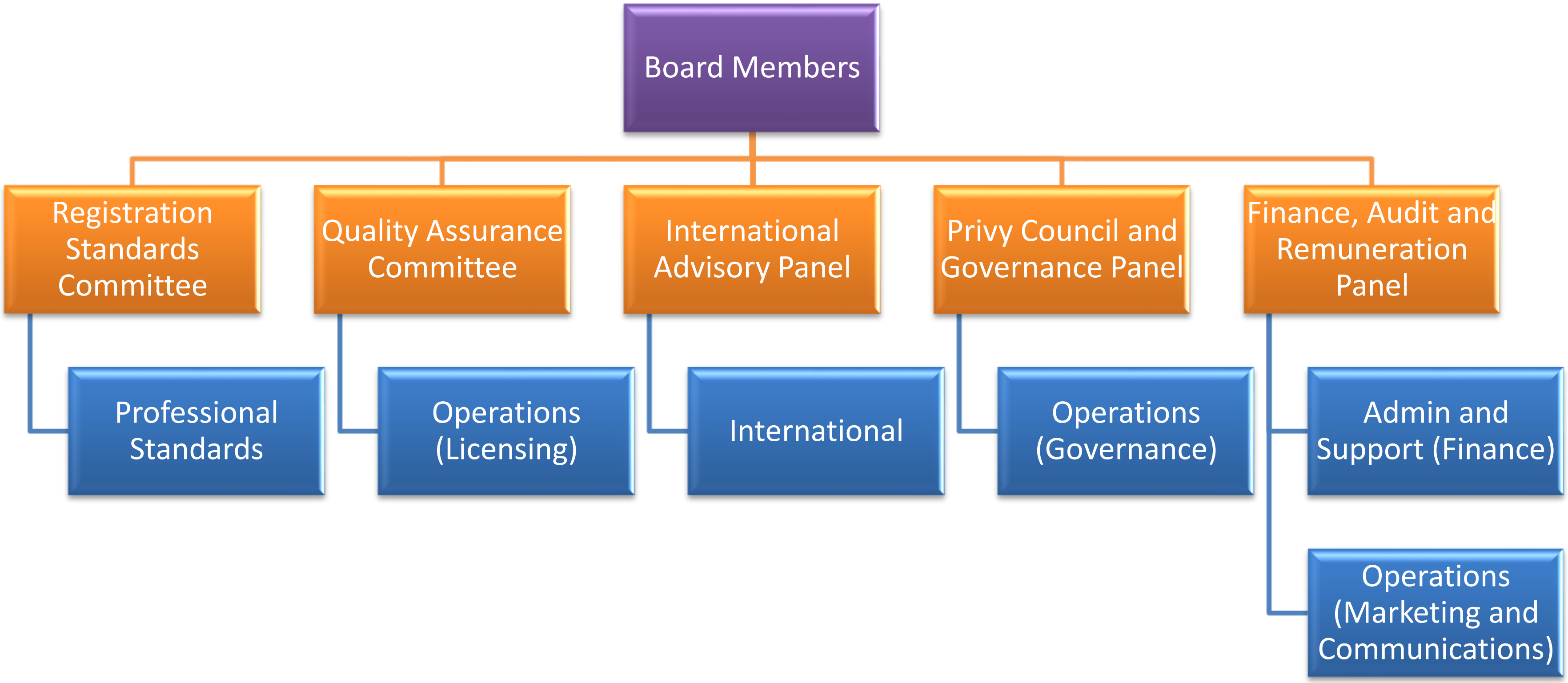
To maintain internationally recognised standards of competence and commitment for the engineering profession, and to license competent institutions to champion the standards.

Our Vision

That society continues to have confidence and trust in the engineering profession.

Engineering Council

Governance



Engineering Council

Quality assurance

Engineering Council Regulations - *"The Board delegates to the QAC its powers appertaining to licensing."*

QAC Terms of Reference

"To admit as Licensees, and award appropriate licences to, engineering institutions which are considered competent to:

- *assess applicants for entry to the Register,*
- *accredit or approve programmes of education or professional development that support admission to the Registers"*

"To monitor the performance of engineering institutions in their role as Licensees and in respect of functions for which they may be licensed as defined by the Byelaws and Regulations."

Quality assurance

Standards

- UK-SPEC (UK Standard for Professional Engineering Competence)
- AHEP (Accreditation of Higher Education Programmes)
- AAQA (Approvals and Accreditation of Qualifications and Apprenticeships)
- RfR (Regulations for Registration)

Policy Statements and Guidance for Institutions

Engineering Council

How does the licensing process work?

- A new licence is awarded for up to two years.
- Existing licences can be renewed for up to 5 years.
- During the licensed period, an annual risk assessment is undertaken for each Licensee to:
  - review licensed activities of the past 12 months
  - identify the key areas of risk
  - determine how those risks are monitored for the following year

Engineering Council

How does the licensing process work?

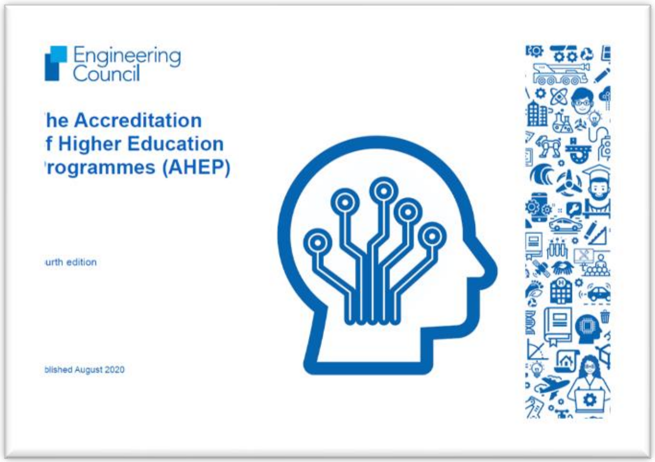
Categories of assessment

To obtain a licence, institutions must provide evidence, a 'submission' of documentation, across the categories of assessment:

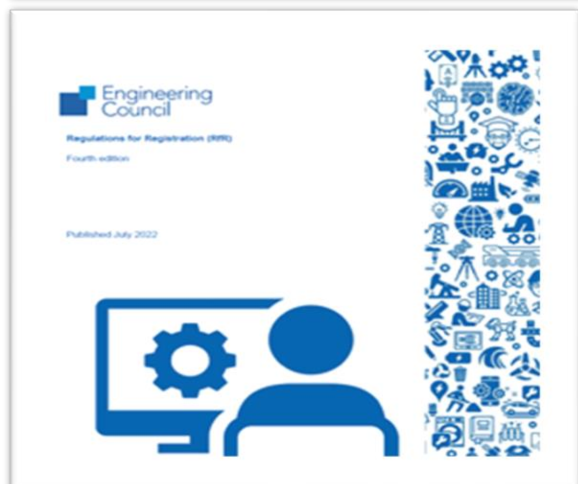
- Governance
- Management
- Registration
- Accreditation of Academic Programmes
- Accreditation / Approval of Professional Development Schemes
- Accreditation / Approval of Qualifications and Apprenticeships
- Continuing Professional Development (CPD)
- International
- Promotion of Registration

Engineering Council Standards

The Accreditation of Higher Education Programmes (AHEP) and Approval of Qualifications and Apprenticeships (AAQA)
set out learning outcomes that accredited and approved programmes must deliver.



These learning outcomes are based upon the competence statements in the UK Standard for Professional Engineering Competence (UK-SPEC).

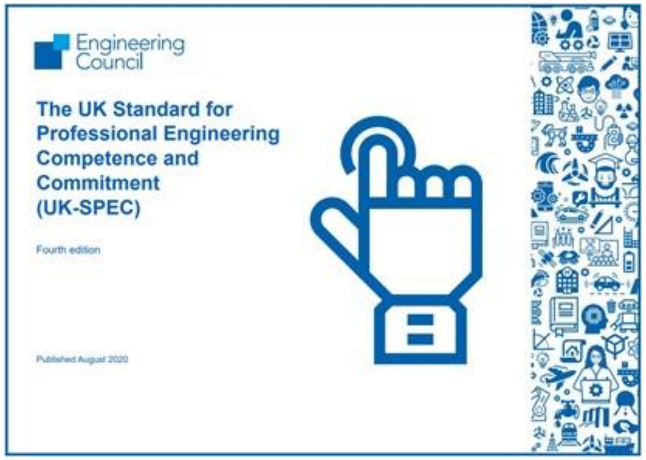


The standards are underpinned by the Regulations for Registration

UK-SPEC

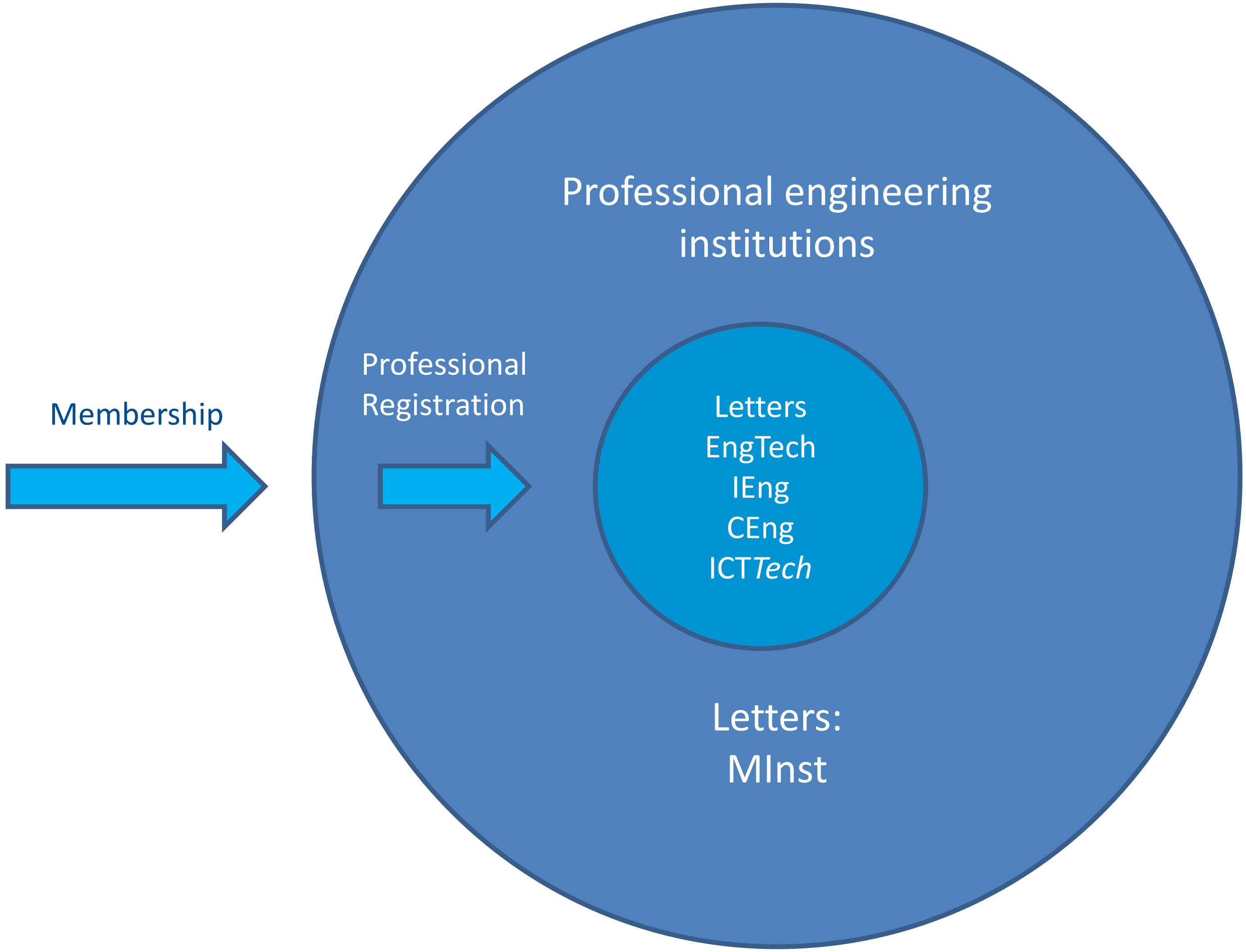
The Engineering Council sets and maintains the UK Standard for Professional Engineering Competence and Commitment

- A – Knowledge and understanding
- B – Design and development of processes, systems, services and products
- C – Responsibility, management or leadership
- D – Communication and interpersonal skills
- E – Professional commitment
- 17 sub-competences



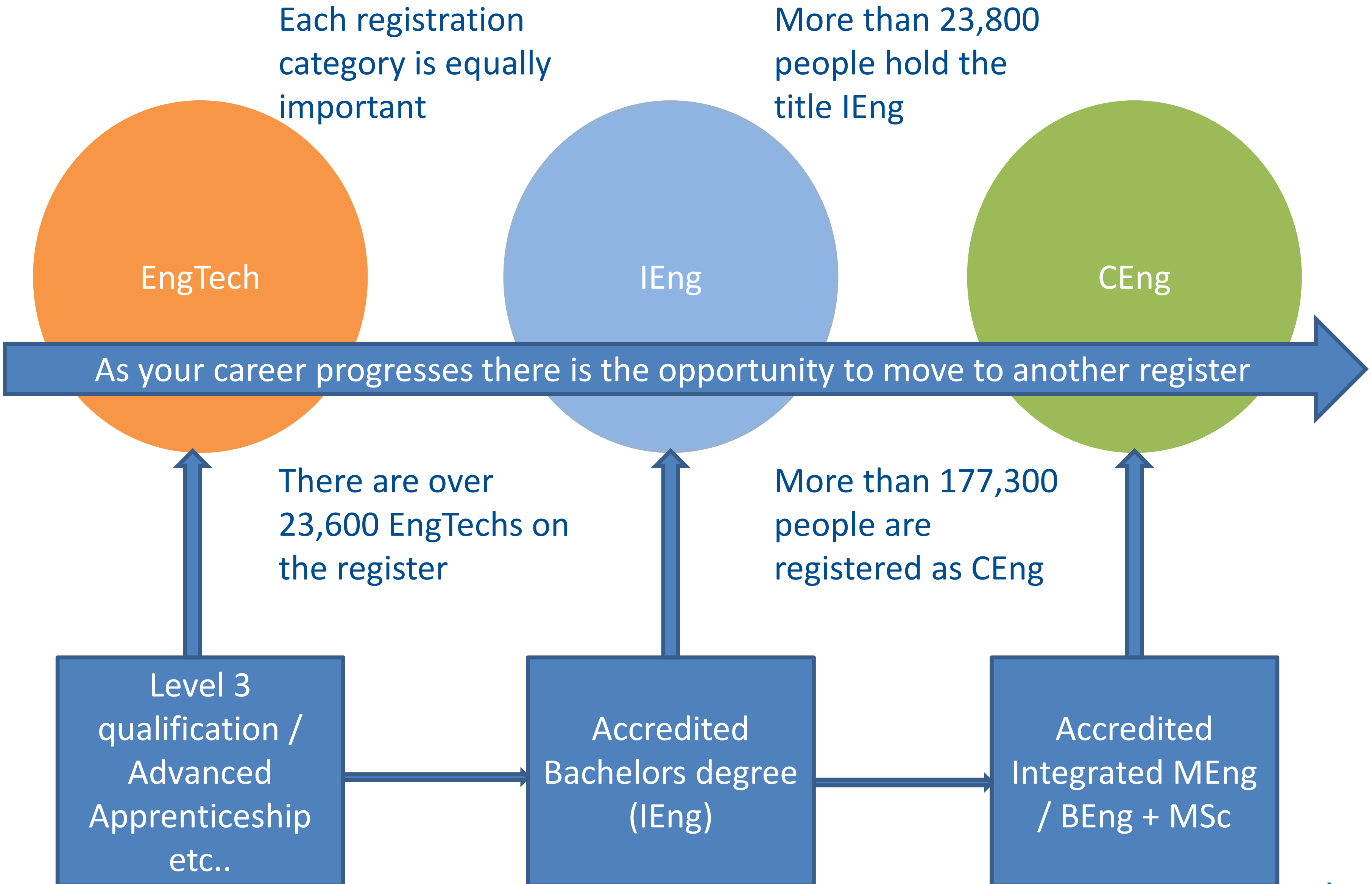
Professional registration and PEI membership

A registrant must be a member of a PEI



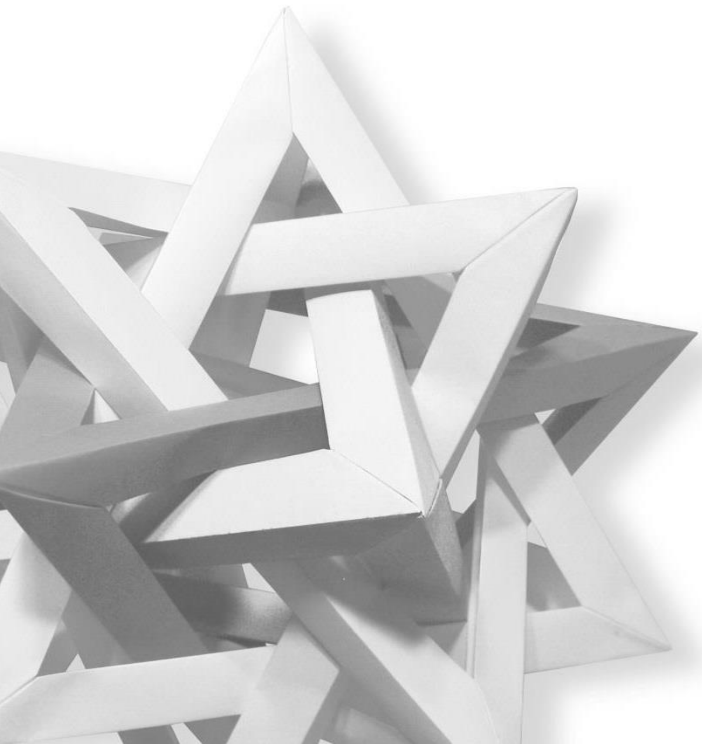
Engineering Council

Professional registration and PEI membership



Engineering Council

Competence-based Assessment



Dr Dave Clark – International Affairs Manager, EngC

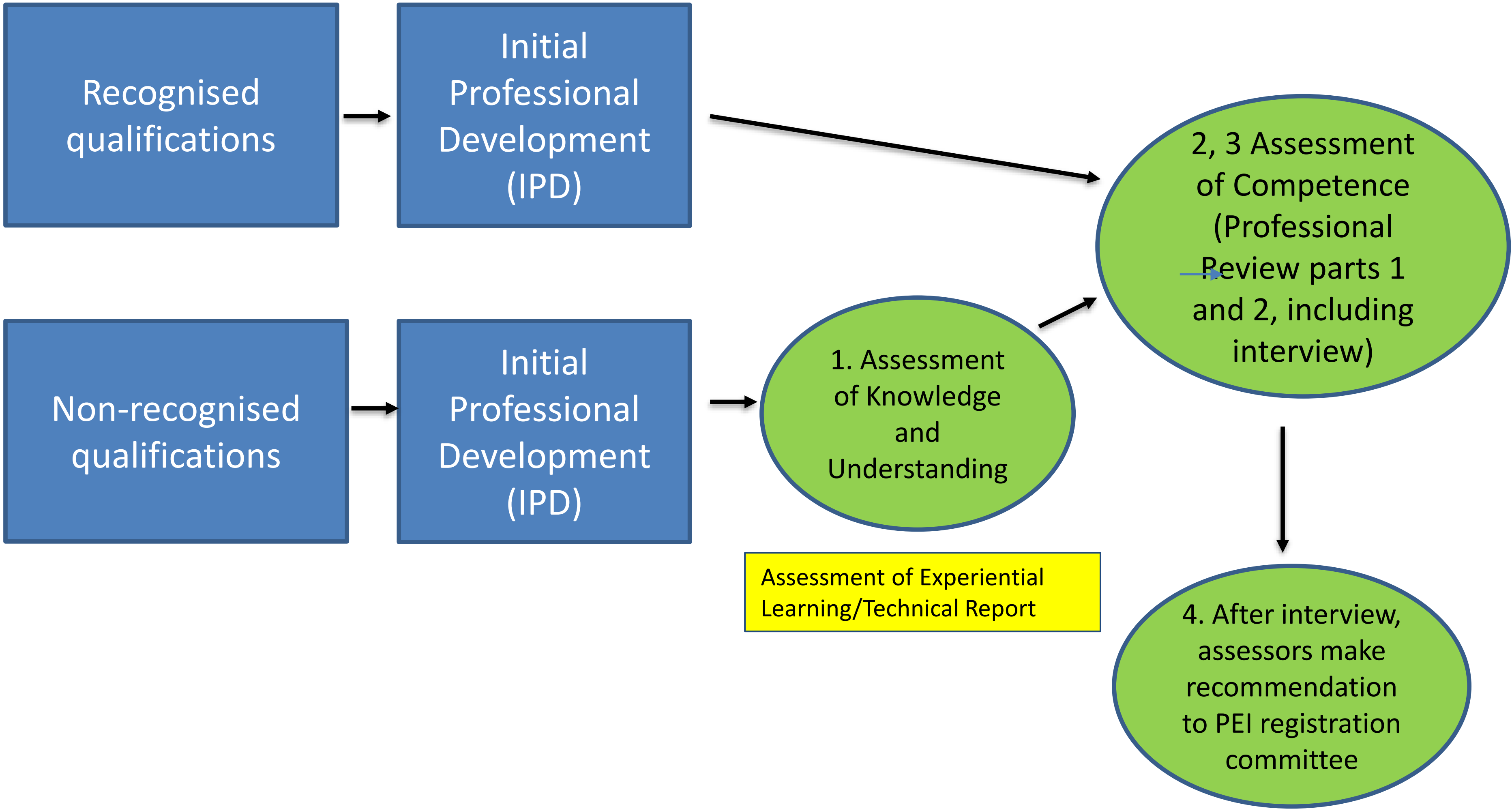
7 February 2023

Assessment stages

- Assessment of knowledge and understanding
  - In-depth for non-recognised qualifications
- Professional Review Part 1
  - Holistic assessment of competence
- Professional Review Part 2
  - Interview, including presentation
  - Recommendation
- Registration Committee
  - Final decision to award registration

Engineering Council

Routes to registration



Engineering Council

(1) Underpinning knowledge and understanding

- Initial assessment based on
  - Career history
  - Education and training record
  - Evidence of experiential (work-based) learning

- Underpinning Knowledge and Understanding demonstrated by:

  - Completing a recognised programme of learning
  - Completing other programmes of learning
  - Evidence of experiential learning
  - Submission of a technical report

  - Any combination of the above

  - Must be relevant to practice area

Engineering Council

(2) Professional Review Part 1

- Assessment of detailed documentary evidence that competences have been met
- Mapped against the UK-SPEC competences,
  or competences derived from UK-SPEC by the licensee
- Identification of areas to be probed at interview
- Two trained assessors, one with appropriate and relevant engineering experience
- Conflict of interest must be avoided
- Decision to proceed to interview, whether further information is required, or further advice needed
- Approximately 60% of applicants proceed to interview without needing to provide further information/clarification

Engineering Council

(3) Professional Review Part 2

- Interview to ascertain that all competences have been met
- Presentation
- Mapped against the UK-SPEC competences,
  or competences derived from UK-SPEC by the licensee
- Two trained assessors, one with appropriate and relevant engineering experience
- Conflict of interest must be avoided
- Reports from professional review parts 1 and 2 are submitted to the licensed member’s professional registration committee (approximately 80%)

Engineering Council

(4) Licensed member's registration committee

- Reports from professional review parts 1 and 2 are submitted to the licensed member's professional registration committee.
- Decision whether to confirm the recommendation.
- The committee's decisions including recommendations, justifications, feedback and moderation must be documented, transparent and auditable
- Applicant advised of outcome.
- Appeals process in place

Engineering Council

Continuing Professional Development

- At Professional Review, all applicants for registration shall demonstrate how they intend to maintain and enhance their professional competence

- Licensed members
  - Must establish and keep under review a CPD policy
  - Promoted the benefits and importance of CPD to registrants and employers
  - Offer a system for planning, recording and sharing CPD
  - Undertake an annual sample of registrants CPD records

- Failure to respond to or engage with requests to provide a CPD record can result in removal from the register

Engineering Council

Professional Standards

- Registrants also demonstrate commitment to maintain professional standards and behaviour:
  - to abide by the code of professional conduct,
  - to behave ethically,
  - to maintain competence,
  - to work within legal, regulatory, professional and technical codes. Information on professional ethics

- Guidance is available on sustainability, risk, ethical principles, whistleblowing, security

- https://www.engc.org.uk/guidance

Engineering Council

International registration

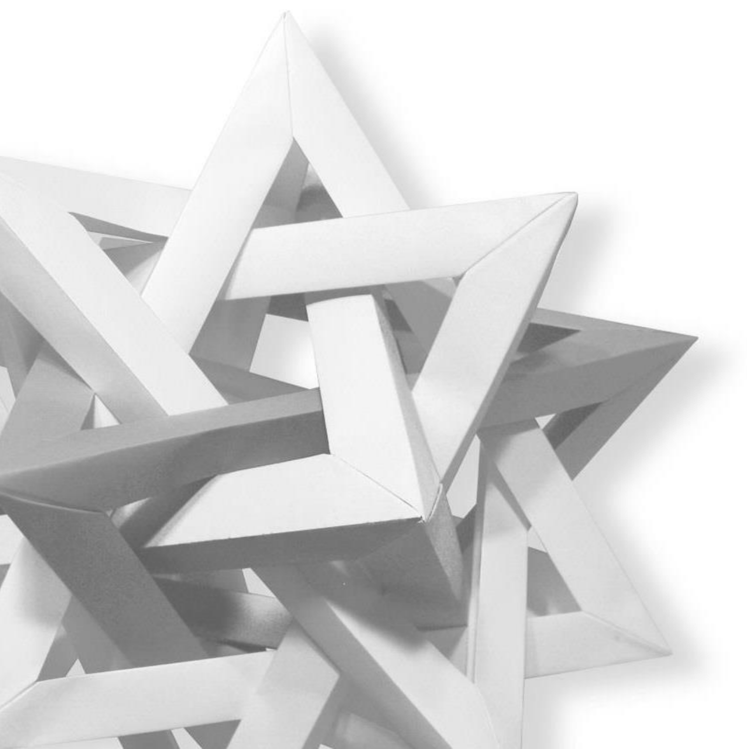
- IntPE and IntET
  - CEng or IEng registration
  - An accredited degree recognised under the Washington or Sydney Accord, or equivalent academic qualification
  - The competence for independent practise as a professional engineer or engineering technologist as exemplified by the IEA competency profiles
  - At least seven years post-graduate experience
  - At least two years responsibility for significant engineering work
  - Maintaining continuing professional development.
- Applications reviewed by the International Registration Committee (IRC), reporting to the International Advisory Panel (IAP)
- Overseas IntPE and IntET seeking registration in the UK have a streamlined application process, where possible

Engineering Council

Engineering Council

Thank you

EURING@engc.org.uk



Engineering Council

APPENDIX E

The UK Standard for Professional Engineering Competence and Commitment (UK-SPEC)

Fourth edition

Published August 2020

Hierarchy of regulations and standards

The Engineering Council is the UK's regulatory body for the engineering profession. It operates under a Royal Charter and is governed by a Board that represents UK Licensees as well as individuals from industries and sectors with an interest in the regulation of the profession.

This document is one in a series of closely related publications:

- **Regulations for Registration (RfR)**
- **Regulations for Licensing (RfL)**
- **The UK Standard for Professional Engineering Competence and Commitment (UK-SPEC)**
- **Information and Communications Technology Technician Standard (ICT*Tech* Standard)**
- **Approval and Accreditation of Qualifications and Apprenticeships (AAQA)**
- **Accreditation of Higher Education Programmes (AHEP)**

The Engineering Council publishes these documents on behalf of the UK engineering profession, with whom they were developed and are kept under review. The relationship between these publications is:

Royal Charter

The Royal Charter is an instrument of incorporation granted by the UK monarch. It confers independent legal personality on the Engineering Council and defines its objectives, constitution and powers to govern its own affairs.

Bye-laws

The Bye-laws are the rules by which the Engineering Council regulates itself.

Regulations

The regulations (including RfR and RfL) set out the rules Licensees must adhere to when carrying out processes regulated by the Engineering Council.

UK-SPEC and the ICT*Tech* Standard are reference Standards that, with reference to RfR, set out the competence and commitment required for registration as CEng, IEng, EngTech and ICT*Tech*.

UK-SPEC

ICT*Tech* Standard

AAQA

AHEP

Recognised Standards

Recognised Standards are derived from UK-SPEC by the Engineering Council, Licensees, or a third party.
www.engc.org.uk/recognisedstandards

AAQA and AHEP are reference Standards that, with reference to RfR, set out the policy, context, rules and procedures for recognising learning and development programmes that help develop the competence and commitment set out in UK-SPEC and ICT*Tech* Standard.

The Engineering Council also publishes policy statements, guidance for institutions and guidance for individuals. These, along with all the publications listed above, are available on the Engineering Council website: www.engc.org.uk

Contents

Foreword

Engineers and technicians respond to the needs of both society and business, solving complex challenges. Engineers and technicians work in the art and practice of changing our world, enhancing welfare, health and safety while paying due regard to the environment.

Society places great faith in the engineering profession, trusting its members to regulate themselves. By achieving and demonstrating professional competence and commitment for the purpose of registration, engineers and technicians demonstrate that they are worthy of that trust.

This document forms part of the Standard used by the UK engineering profession to assess the competence and commitment of individual engineers and technicians. It was developed collaboratively in consultation with engineers representing the breadth of the profession, from industry, academia and many different disciplines and specialisms.

Welcome

The purpose of UK-SPEC

This document is the UK Standard for Professional Engineering Competence and Commitment (UK-SPEC).

The primary purpose of UK-SPEC is to explain the competence and commitment requirements that people must meet and demonstrate to be registered in each of these registration categories:

- **Engineering Technician (EngTech)**
- **Incorporated Engineer (IEng)**
- **Chartered Engineer (CEng)**

This document also explains:

- Why professional registration is important
- How to achieve professional registration
- What engineers and technicians must do to maintain professional registration, including:
  - the requirement to maintain and enhance competence
  - the obligation to act with integrity and in the public interest
  - membership of a Licensee

Who UK-SPEC is for

Many different users will find this document useful. However, it has been written primarily for these audiences:

- Individuals who are thinking about becoming professionally registered
- Licensees and Professional Affiliates through which engineers and technicians become registered
- Employers of engineers and technicians
- People responsible for engineers' education or training

Licensee

Throughout this document the term 'Licensee' is used to describe the engineering institutions that have been licensed by the Engineering Council board to assess individuals for professional registration. To become Licensees organisations must pass a rigorous process demonstrating, to the satisfaction of the Engineering Council Board, that they are competent to perform this task and to regulate the conduct of their members. Additionally, Licensees can also be licensed to approve or accredit programmes of learning to specific standards. Licensees are sometimes known informally as Professional Engineering Institutions, or PEIs.

Glossary

At the end of UK-SPEC there is a glossary that explains some of terms we use.

Key information

Throughout this document some key information, terms and crucial points will be picked out in boxed text like this to help navigation.

What is professional registration?

Professional registration verifies that an individual can meet the engineering and technological needs of today, while also anticipating the needs of, and impact on, future generations.
Both in the UK and overseas, professional registration gives employers, government and society confidence in the engineering industry. In this way, professional registration offers safeguarding assurances.
Registration demonstrates that an engineer or technician has reached a set standard of knowledge, understanding and occupational competence. It also demonstrates an individual's commitment to professional standards and to developing and enhancing through Continuing Professional Development (CPD).

UK-SPEC covers three professional registration categories which are set out in Table 1 on page 7.

People who gain further qualifications or experience over the course of their careers can be assessed for another registration title. Many people continue to develop their competence to enable them to move from EngTech to IEng or CEng, or from IEng to CEng.

Why register?

Benefits for individuals: recognition, career development, earning potential

Professional registration sets individual engineers and technicians apart from those who are not registered. Gaining a professional title establishes a person's proven knowledge, understanding and competence to a set standard and demonstrates their commitment to developing and enhancing competence.

Registration increases a person's earning potential and establishes credibility with peers across the profession. The professional qualifications of EngTech, IEng and CEng are internationally recognised.

Maintaining registration requires continued membership of a Licensee. Licensees, in turn, can help registrants find development opportunities through exposure to new developments, training or networking opportunities.

In addition, the criteria of the UK-SPEC provide a useful framework for CPD, particularly for engineers and technicians aiming for a professional registration title. Achievement of registration can demonstrate a person's readiness for promotion or help them secure new roles or contracts.

Further benefits for individuals are available at:
www.engc.org.uk/benefits

Table 1: Overview of professional registration titles

Title	Engineering Technician (EngTech)	Incorporated Engineer (IEng)	Chartered Engineer (CEng)
Descriptor	Applies proven techniques and procedures to solve practical engineering problems. Applies safe systems of work.	Maintains and manages applications of current and developing technology, and may undertake engineering design, development, manufacture, construction and operation.	Develops solutions to engineering problems using new or existing technologies, through innovation, creativity and change. May be accountable for complex systems with significant levels of risk.
Key attributes:	1. Contribution to either the design, development, manufacture, commissioning, decommissioning, operation or maintenance of products, equipment, processes or services 2. Supervisory or technical responsibility 3. Effective interpersonal skills in communicating technical matters 4. Commitment to professional engineering values	1. The theoretical knowledge to solve problems in developed technologies using well proven analytical techniques 2. Successful application of their knowledge to deliver engineering projects or services using established technologies and methods 3. Contribution to project and financial planning and management together with some responsibility for leading and developing other professional staff 4. Effective interpersonal skills in communicating technical matters 5. Commitment to professional engineering values	1. The theoretical knowledge to solve problems in new technologies and develop new analytical techniques 2. Successful application of the knowledge to deliver innovative products and services and/or take technical responsibility for complex engineering systems 3. Responsibility for financial and planning aspects of projects, sub-projects or tasks 4. Leading and developing other professional staff through management, mentoring or coaching 5. Effective interpersonal skills in communicating technical matters 6. Commitment to professional engineering values

Benefits for employers: assurance of quality

Employers of professionally registered engineers and technicians can be assured that registered engineers and technicians have:

- had their competence and credentials independently assessed
- had their credentials verified to an internationally recognised standard, and
- made a commitment to their CPD.

Employing registered professionals can help mitigate against risks and liabilities, as registrants are governed by a Code of Professional Conduct.

Maintaining registration requires continued membership of a Licensee and a commitment to CPD. This means employers can be reassured that registered employees are developing and enhancing their competence and will be exposed to new developments in their profession.

Some employers find the framework of the UK-SPEC a useful basis for their own organisational needs, such as to structure CPD. Others rely on achievement of registration to demonstrate an employee's readiness for promotion. In some cases, both in the UK and internationally, the awarding of contracts will require evidence that organisations employ professionally registered engineers.

Further benefits for employers are available at: www.engc.org.uk/employers

International context

The Engineering Council is committed to supporting its professionally registered engineers and technicians working in other countries. The professional titles EngTech, IEng and CEng are recognised widely around the world. Professional registration, as defined in UK-SPEC, reflects the requirements of global engineering.

Engineers who have developed their professional engineering competence in countries outside of the United Kingdom are welcome to join the Engineering Council register, subject to meeting the assessment criteria.

For further information see: www.engc.org.uk/international

What is engineering competence?

Competence is defined as a professional's ability to carry out engineering tasks successfully and safely within their field of practice. This includes having the individual skills, knowledge and understanding, personal behaviour and approach, to be able to work collaboratively with others to achieve the intended outcomes. Competence includes the ability to make professional judgments and an awareness of the limits of one's own ability and knowledge in order to seek assistance when required.

Each registration title requires demonstrations of competence in five broad areas:

A. Knowledge and understanding
B. Design, development and solving engineering problems
C. Responsibility, management and leadership
D. Communication and interpersonal skills
E. Professional commitment

What is professional commitment?

Registered engineering professionals are required to demonstrate a personal and professional commitment to society, to the environment and to their profession. As part of demonstrating overall competence, it is mandatory to show that they have adopted a set of values and conduct that maintains and enhances the reputation of the profession. This includes:

- Maintaining public and employee safety
- Undertaking work in a way that protects the environment and contributes to sustainable development
- Complying with codes of conduct, codes of practice and the legal and regulatory framework
- Managing, applying and improving safe systems of work
- Carrying out the CPD necessary to maintain and enhance competence in relation to duties and responsibilities
- Exercising responsibilities in an ethical manner
- Recognising inclusivity and diversity
- Adopting a security-minded approach
- Actively participating within the profession

The Engineering Council has published a CPD Code for Registrants, (see page 46), as well as guidance on risk, sustainability, whistleblowing and security (see page 47).

Ethical standards

Together with the Royal Academy of Engineering, the Engineering Council developed The Statement of Ethical Principles. This document outlines how members of the profession should conduct themselves in their working habits and relationships. The values it is based on should apply in every situation in which engineers and technicians exercise their judgment.

The Statement of Ethical Principles is available at:
www.engc.org.uk/ethics

Further information on the required Standards is available from a variety of sources. Each Licensee will have its own Code of Professional Conduct, in line with the framework on Professional and Ethical Behaviour on page 47 of this document, and supporting guidance.

How to become professionally registered

Professional registration is open to all engineers and technicians who:

- Can satisfy the requirements for underpinning knowledge and understanding
- Can demonstrate competence and commitment to meet the necessary standard
- Are members of a Licensee relevant to their discipline

What are the requirements for registration?

The Engineering Council sets the Standards which need to be met for EngTech, IEng and CEng. Pages 19–45 show the requirements for all three titles. However, it is the Licensee that will carry out an assessment of an applicant's competence and commitment. The Licensee will act as the awarding body for professional registration as EngTech, IEng or CEng.

Applicants need to apply for professional registration through a Licensee relevant to their discipline. The Licensee will be able to provide details about registration, including the process and typical timescales.

The list of Licensees licensed by the Engineering Council is available at: www.engc.org.uk/licensees

A Professional Affiliate is an engineering institution which is closely associated with the Engineering Council but is not licensed to assess applicants or award registration. Some Professional Affiliates will have a registration agreement with a Licensee so that the Licensee can assess members of the Professional Affiliate for registration. These Professional Affiliate members may then apply for registration through the Licensee.

The current list of Professional Affiliates, including those which have registration agreements, is available at: www.engc.org.uk/affiliates

How are applicants assessed?

Pages 19–45 list the requirements for all three professional titles. Once a person is confident that they meet all the criteria for a professional title, they should make an application for assessment through their chosen Licensee. The assessment process is known as a Professional Review. The Licensee will provide a detailed description of the requirements and format for this.

Applicants will need to submit formal documented evidence of any relevant qualifications, experience or training and show how this relates to the required competences and commitment set out in pages 19–45 of this document.

For EngTech qualifications, depending on the Licensee, there may be an interview, or it may simply be a one-stage process assessing an applicant's submitted written evidence.

For CEng and IEng titles the Professional Review process has two stages: an assessment of written evidence and then an interview. In some engineering disciplines Licensees may specify additional methods of assessing competence and commitment.

Meeting the requirements for registration

Knowledge, understanding and skills form an essential part of competence. This provides the necessary foundation of underpinning logic and analytical capabilities. Knowledge, understanding and skills ensure that decisions are based on a full understanding of engineering practices and standards, rather than relying on instructions.

Formal education is one way of demonstrating the necessary underpinning knowledge and understanding (see Recognised Qualifications, pages 13–15), but it is not the only way (see Individual Assessment, page 16).

Figure 1: Assessment process

Recognised qualifications

For applicants who have achieved the required learning outcomes through recognised qualifications. Qualifications which provide the required level of knowledge and understanding are:

- EngTech: Level 3 qualification as part of an approved apprenticeship scheme
- IEng: an accredited Bachelors degree
- CEng: an accredited integrated Masters degree or a combination of accredited Bachelors and Masters degrees

Individual assessment

Applicants who do not have the recognised qualifications will instead have an individual assessment of their qualifications and any other relevant learning such as:

- formal academic programmes
- in-employment training
- experiential learning
- self-directed learning

Applicants may be also asked to write a technical report or attend a technical interview.

The assessment will be carried out by registrants who are also members of the Licensee. The exact process is set out by the Licensee.

Professional Review of competence and commitment

Applicants are assessed against the UK-SPEC standard of competence which sets the minimum requirements. Licensees may add requirements which relate to their particular engineering discipline.

An expert panel, consisting of registered engineers from the Licensee, will review an applicant's portfolio of evidence against the requirements. This is followed by:

Professional Review Interview (PRI)

All IEng and CEng applicants will be interviewed by a panel of registered engineers who are also members of the Licensee. EngTech applicants may need to attend a Professional Review Interview.

The panel will then make a recommendation on whether the applicant meets the requirements for their chosen registration category.

Figure 1 (continued)

Professional registration

The recommendation from the Professional Review is reviewed by the Licensee's relevant committee. The applicant will achieve professional registration if:

- The expert panel recommends that the applicant has met the requirements
- All are satisfied that all stages of the process have been completed, and
- The Licensee's relevant committee endorses the recommendation.

The applicant then becomes a registrant and is able to use the relevant post-nominal.

As a condition of continued registration, the individual commits to:

- Maintain their competence through CPD and membership of their Licensee, and
- Adhere to their Licensee's Code of Professional Conduct.

If an applicant has been unsuccessful the Licensee will provide some guidance on what further learning and/or competence development would be beneficial to achieve registration.

When all the above steps are completed to the satisfaction of the Licensee's relevant committee, the applicant achieves professional registration. They commit to maintain their CPD and membership of their Licensee and to adhere to their Licensee's Code of Professional Conduct.

Recognised qualifications

The underpinning knowledge and understanding for each registration category can be developed from recognised qualifications that deliver the appropriate learning outcomes. The recognised qualifications for each registration category are set out in Table 2. The learning outcomes are set out in detail in the Engineering Council publications Accreditation of Higher Education Programmes (AHEP) and the Approval and Accreditation of Qualifications and Apprenticeships (AAQA) Standards.

Table 2: Recognised qualifications

Engineering Technician (EngTech) One of the following:	Incorporated Engineer (IEng) One of the following:	Chartered Engineer (CEng) One of the following:
• Successful completion of an apprenticeship or other work-based learning programme approved by a Licensee • Alongside appropriate working experience, holding a qualification, approved by a Licensee, in engineering or construction set at either: ▸ level 3 (or above) in the Regulated Qualifications Framework or National Qualifications Framework for England and Northern Ireland ▸ level 6 (or above) in the Scottish Credit and Qualifications Framework ▸ level 3 (or above) in the Credit and Qualifications Framework for Wales • Alongside appropriate working experience, holding equivalent qualifications or apprenticeships accredited or approved by a Licensee, or at an equivalent level in a relevant national or international qualifications framework†	• An accredited Bachelors or honours degree in engineering or technology • An accredited Higher National Certificate (HNC) or Higher National Diploma (HND) in engineering or technology started before September 1999 • An HNC or HND started after September 1999 (but before September 2010 in the case of the HNC) or a Foundation Degree in engineering or technology, plus appropriate further learning to degree level • A National Vocational Qualification (NVQ) or Scottish Vocational Qualification (SVQ) at level 4 that has been approved by a Licensee, plus appropriate further learning to degree level* • Equivalent qualifications or apprenticeships accredited or approved by a Licensee, or at an equivalent level in a relevant national or international qualifications framework†	• An accredited Bachelors degree with honours in engineering or technology, plus either an appropriate Masters degree or engineering doctorate accredited by a Licensee, or appropriate further learning to Masters level* • An accredited integrated MEng degree • An accredited Bachelors degree with honours in engineering or technology started before September 1999 • Equivalent qualifications or apprenticeships accredited or approved by a Licensee, or at an equivalent level in a relevant national or international qualifications framework†

* See: www.engc.org.uk/ukspec4th for qualification levels and HE reference points.

† For example, UNESCO's International Standard Classification of Education (ISCED) framework.

The Engineering Council maintains a publicly accessible recognised course search database, which is available at: www.engc.org.uk/courses

Individual assessment

Many potential registrants have not had formal training to the required level but are able to demonstrate they have acquired the necessary underpinning knowledge through substantial work experience. Applicants who have acquired their underpinning knowledge and understanding through experiential learning or other qualifications can submit the relevant information to their Licensee for an initial assessment.

This process includes assessment of the applicant's prior learning and underpinning knowledge needed to successfully perform their role. Applicants should submit information covering their education, career history and training record. It may also be helpful for applicants to include evidence of employer recognition of their competences and relevant skills.

If the Licensee considers, after this initial assessment, that it needs additional evidence of knowledge and understanding it will advise the applicant on the nature and extent of this. An applicant can demonstrate knowledge and understanding in a number of ways, such as:

- Successfully completing further qualifications, either in whole or in part,
- Providing a record of having completed work-based or experiential learning,
- Writing a technical report, based on experience, which demonstrates the applicant's knowledge and understanding of engineering principles, or
- Any combination of these.

Preparing for registration

Pages 19–45 of this document set out the competence and commitment Standards for registration as an EngTech, IEng or CEng.

Engineers seeking registration should review the competence and commitment statements and use the examples to help them identify where they already have an appropriate level of competence, as well as what evidence they can present to demonstrate this. They should also identify areas where they currently lack the appropriate competence, in order to formulate plans to develop to the required level.

Pages 19–39 also include some examples of the kind of evidence which would contribute to demonstrating competence and commitment to the required Standards. However, the list of examples is only for guidance: it is not exhaustive, and the examples are not requirements for achieving professional registration.

For all categories, those seeking registration after completing their early career training should present a detailed record of their professional development, responsibilities and experience. To enable applicants to provide the best evidence for the Professional Review, this record should be verified by supervisors or mentors.

Professional Review: assessing competence and commitment

To become professionally registered, applicants must have their competence and commitment assessed through a Professional

Review, overseen by the Licensee. This peer review process is carried out by registrants who are competent and trained to carry out this kind of assessment.

Applicants are assessed against the Standards listed in pages 19–45 of this document, which may be adapted by the Licensee to relate specifically to the particular technologies or industries it is concerned with. There is no prescribed time period or minimum age requirement for the development of competence and commitment. The length of time it takes depends on many factors such as a person's prior qualifications or experience, their job role, as well as personal circumstances such as career breaks or part time working.

Scrutiny of qualifications

The first stage of the Professional Review is an assessment of the documented evidence which the applicant has submitted. The applicant's Licensee will specify the requirements for this submission. The Licensee will examine the examples of evidence and assess how they meet the underpinning knowledge, understanding and competence requirements.

Applicants will need to submit evidence in support of their application such as their:

- Educational record and qualifications
- Professional qualifications awarded by other national, regional or international authorities
- Structured or other professional development
- Areas of responsibility, management and leadership
- Evidence of effective interpersonal skills
- A plan for future professional development

Professional Review

After the submitted evidence has been reviewed, the Licensee will decide whether the applicant is ready to proceed to Professional Review. The Licensee will be able to advise applicants how to best present their evidence of training and experience. If there are shortfalls in evidence, Licensees will usually be able to suggest ways in which the applicant can address them. This may involve further learning, training or additional experience.

Once the submitted evidence has been accepted as a basis for the review, the next stage is a Professional Review Interview (PRI). This is mandatory for IEng and CEng applicants. For EngTech applicants there may be an interview, at the discretion of the Licensee, or the Professional Review may be based solely on the submitted documents.

When the Professional Review has been completed, the peer reviewers will make a recommendation to the Licensee's designated committee. The committee will then make a decision on whether the applicant has demonstrated that they meet the required standards. A positive decision will result in registration of the applicant as an EngTech, IEng or CEng. Where the applicant has been unsuccessful the Licensee will provide feedback to help the applicant overcome any shortfalls in competence.

Retention of the title requires:

- Continued membership of either:
  - a Licensee licensed for that title or
  - a Professional Affiliate which has a registration agreement with a Licensee licensed for that title,

  and:
- Payment of an annual fee,

  and:
- Undertaking and recording Continuing Professional Development (CPD).

For more information please see: www.engc.org.uk/cpd

The Engineering Technician (EngTech) Standard

Engineering Technicians apply proven techniques and procedures to the solution of practical engineering problems.

Engineering Technicians shall demonstrate:

- Engineering knowledge and understanding to apply technical and practical skills
- Evidence of their contribution to the design, development, manufacture, commissioning, decommissioning, operation or maintenance of products, equipment, processes or services
- Supervisory or technical responsibility
- Effective interpersonal skills in communicating technical matters
- The ability to operate in accordance with safe systems of work and to demonstrate appropriate understanding of the principles of sustainability
- Commitment to professional engineering values

An Engineering Technician will be able to demonstrate their competence in all of the areas listed, but the depth and extent of their experience and competence will vary with the context, nature and requirements of their role. They will demonstrate a level of competence and commitment in each area, (A1–E5), at a level which is consistent with their specific role. It is to be expected that they will have a higher level of competence in some areas than others and their role may provide limited experience in certain areas. However, they need to demonstrate an understanding of, and familiarity with, the key aspects of competence in those areas of limited experience as a minimum requirement while demonstrating higher levels of competence in those areas which are critical to their role. Overall, they will demonstrate an appropriate balance of competences to perform their role effectively at Engineering Technician level.

The examples of evidence are intended as guidance to help identify activities that might demonstrate the required competence and commitment for Engineering Technician registration. They are intended as examples only as the most appropriate evidence will vary with each individual role. The list is not exhaustive and other types of evidence might be valid. There is no requirement to provide multiple examples of evidence for each area of competence, but examples from two or three projects or tasks would be useful.

<table>
<tr><th colspan="2">Competence</th><th>Examples of evidence</th></tr>
<tr><td rowspan="2">A. Knowledge and understanding

Engineering Technicians shall use engineering knowledge and understanding to apply technical and practical skills.

This competence is about having knowledge of the technologies, standards and practices relevant to the applicant's area of work and having evidence of maintaining and applying this knowledge.</td><td>The applicant shall demonstrate that they:

1. Review and select appropriate techniques, procedures and methods to undertake tasks</td><td>• Evaluating potential methods of carrying out an engineering task and selecting the most appropriate solution
• Recognising a difficulty and then identifying an approach to resolve it
• Identifying an improvement in a technique, procedure, process or method
• Interpreting and carrying out test procedures</td></tr>
<tr><td>2. Use appropriate scientific, technical or engineering principles.</td><td>• Drawing on your technical knowledge to complete a task
• Performing calculations using standard formulae
• Analysing performance or test data or comparing performance information with published material</td></tr>
<tr><td rowspan="2">B. Design, development and solving engineering problems

Engineering Technicians shall contribute to the design, development, manufacture, construction, commissioning, decommissioning, operation or maintenance of products, equipment, processes, systems or services.

This competence is about the ability to apply engineering knowledge effectively and efficiently to the individual tasks which need to be undertaken in the applicant's role.</td><td>The applicant shall demonstrate that they:

1. Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions</td><td>• Using knowledge to identify a problem or an opportunity for improvement
• Investigating a problem to identify the underlying cause
• Identifying a solution to a problem or an improvement opportunity
• Contributing to the design of an item or process</td></tr>
<tr><td>2. Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact.</td><td>• Balancing these factors in selecting appropriate materials
• Identifying precautions as a result of evaluating risks and other factors
• Considering how waste can be minimised, recycled or disposed of safely if recycling is not possible
• Contributing to best practice methods of continuous improvement
• Improving the quality of an operation or process</td></tr>
</table>

Competence		Examples of evidence
C. Responsibility, management and leadership **Engineering Technicians shall accept and exercise personal responsibility.** This competence is about the ability to plan and manage the applicant's own work effectively and efficiently. It is also about the ability to consider and identify improvements to maintain quality in their work.	The applicant shall demonstrate that they: 1. Work reliably and effectively without close supervision, to the appropriate codes of practice	• Completing challenging tasks successfully within your area of work • Identifying issues which fall outside of your current knowledge and seeking advice • Identifying standards and codes of practice relevant to a new task
	2. Accept responsibility for the work of themselves or others	• Fully understanding drawings, permits to work, instructions or other similar documents after appropriate checking, and identifying issues • Inspecting work carried out by others • Checking the status of equipment, the work environment and facilities and taking appropriate actions before commencing work
	3. Accept, allocate and supervise technical and other tasks.	• Ensuring that the scope of a task is clear before accepting and/or allocating it to others • Querying any aspect of a task which is not clear and/or providing an explanation if a query is raised by others • Learning from your own experience and/or providing constructive feedback when supervising or working with others

Competence		Examples of evidence
D. Communication and interpersonal skills **Engineering Technicians shall use effective communication and interpersonal skills.** This is the ability to work with others constructively, to explain ideas and proposals clearly and to discuss issues objectively and constructively.	The applicant shall demonstrate that they: 1. Communicate effectively with others, at all levels, in English	• Contributing to meetings and discussions • Preparing communications, documents and reports on technical matters • Exchanging information and providing advice to technical and non-technical colleagues
	2. Work effectively with colleagues, clients, suppliers or the public	• Contributing constructively as part of a team • Successfully resolving issues in discussions with team members, suppliers, clients and/or others • Persuading others to accept suggestions or recommendations • Identifying, agreeing and working towards collective goals
	3. Demonstrate personal and social skills and awareness of diversity and inclusion issues.	• Knowing and managing own emotions, strengths and weaknesses • Being confident and flexible in dealing with new and changing interpersonal situations • Creating, maintaining and enhancing productive working relationships, and resolving conflicts • Being supportive of the needs and concerns of others, especially where this relates to diversity and inclusion

Competence		Examples of evidence
E. Personal and professional commitment **Engineering Technicians shall demonstrate commitment to an appropriate code of professional conduct, recognising obligations to society, the profession and the environment.** This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. An Engineering Technician should set a standard and example to others with regard to professionalism.	This shall include the ability to: 1. Understand and comply with relevant codes of conduct	• Demonstrating compliance with your Licensee's Code of Professional Conduct • Working within all relevant legislative and regulatory frameworks, including social and employment legislation
	2. Understand the safety implications of their role and apply safe systems of work	• Providing evidence of applying current safety requirements, such as risk assessment and other examples of good practice you adopt in your work • A sound knowledge of health and safety legislation, for example: HASAW 1974, CDM regulations, ISO 45001 and company safety policies
	3. Understand the principles of sustainable development and apply them in their work	• Recognising how sustainability principles, as described in the Guidance on Sustainability on page 48, can be applied in your day-to-day work • Identifying actions that you can and have taken to improve sustainability
	4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice	• Undertaking reviews of your own development needs • Planning how to meet personal and organisational objectives • Carrying out and recording planned and unplanned CPD activities • Maintaining evidence of competence development • Evaluating CPD outcomes against any plans made • Assisting others with their own CPD
	5. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner.	• Understanding the ethical issues that you may encounter in your role • Giving an example of where you have applied ethical principles as described in the Statement of Ethical Principles on page 47 • Giving an example of where you have applied or upheld ethical principles as defined by your organisation or company

The Incorporated Engineer (IEng) Standard

Incorporated Engineers maintain and manage applications of current and developing technology, and may undertake engineering design, development, manufacture, construction and operation.

Incorporated Engineers shall demonstrate:

- The theoretical knowledge to solve problems in established technologies using well proven analytical techniques
- Successful application of the knowledge to deliver engineering tasks or services using established technologies and methods
- Contribution to the financial and planning aspects of projects or tasks and contribution to leading and developing other professional staff
- Effective interpersonal skills in communicating technical matters
- The ability to specify and operate to safe systems of work and to demonstrate appropriate consideration of the principles of sustainability
- Commitment to professional engineering values

An Incorporated Engineer will be able to demonstrate their competence in all of the areas listed, but the depth and extent of their experience and competence will vary with the nature and requirements of their role. They will demonstrate a level of competence and commitment in each area (A1–E5) at a level which is consistent with their specific role. It is to be expected that they will have a higher level of competence in some areas than others and their role may provide limited experience in certain areas. However, they need to demonstrate an understanding of, and familiarity with, the key aspects of competence in all areas as a minimum requirement while demonstrating higher levels of competence in those areas which are critical to their role. Overall, they must demonstrate an appropriate balance of competences to perform their role effectively at Incorporated Engineer level.

The examples of evidence are intended as guidance to help identify activities that might demonstrate the required competence and commitment for Incorporated Engineer registration. They are intended as examples only as the most appropriate evidence will vary with each individual role. The list is not exhaustive and other types of evidence might be valid. There is no requirement to provide multiple examples of evidence for each area of competence, but examples from two or three projects or tasks would be useful.

<table>
<tr><th colspan="2">Competence</th><th>Examples of evidence</th></tr>
<tr><td rowspan="2">A. Knowledge and understanding

Incorporated Engineers shall use a combination of general and specialist engineering knowledge and understanding to apply existing and emerging technology.

This competence is about having knowledge of the technologies, standards and practices relevant to the applicant’s area of practice and having evidence of maintaining and applying this knowledge.</td><td>The applicant shall demonstrate that they:

1. Have maintained and extended a sound theoretical approach to the application of technology in engineering practice</td><td>• Identifying the limits of your knowledge and skills
• Taking steps to develop and extend personal knowledge of appropriate technology, both current and emerging
• Applying newly gained knowledge successfully in a task or project
• Reviewing current procedures and processes and recommended improvements or changes to reflect best practice
• Developing knowledge needed to work in a new industry area or discipline</td></tr>
<tr><td>2. Use a sound evidence-based approach to problem-solving and contribute to continuous improvement.</td><td>• Applying knowledge and experience to investigate and solve problems arising during engineering tasks and implementing corrective action
• Identifying opportunities for improvements and how these have been (or could be) implemented
• Using an established process to analyse issues and establish priorities</td></tr>
</table>

Competence		Examples of evidence
B. Design, development and solving engineering problems **Incorporated Engineers shall apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate, maintain, decommission and recycle engineering processes, systems, services and products.** This competence is about the ability to identify appropriate methods and approaches to use to undertake a task within their area of practice and to make a significant contribution to the development of a design or process or the maintenance of operations.	The applicant shall demonstrate that they: 1. Identify, review and select techniques, procedures and methods to undertake engineering tasks	• Establishing the engineering steps needed to carry out a task efficiently • Identifying the available products or processes needed to undertake an engineering task and establishing a means of identifying the most suitable solution • Preparing technical specifications • Reviewing and comparing responses to the technical aspects of tender invitations • Establishing user requirements for improvements
	2. Contribute to the design and development of engineering solutions	• Contributing to the identification and specification of design and development requirements for engineering products, processes, systems and services • Identifying operational risks and evaluating possible engineering solutions, taking account of cost, quality, safety, reliability, accessibility, appearance, fitness for purpose, security (including cyber security), intellectual property constraints and opportunities, and environmental impact • Collecting and analysing results • Carrying out necessary tests
	3. Implement design solutions for equipment or processes and contribute to their evaluation.	• Identifying the resources required for implementation • Implementing design solutions, taking account of critical constraints, including due concern for safety and sustainability • Identifying problems during implementation and taking corrective action • Contributing to recommendations for improvement and actively learning from feedback on results

Competence		Examples of evidence
C. Responsibility, management and leadership **Incorporated Engineers shall provide technical and commercial management.** This competence is about the ability to plan the applicant's own work and manage or specify the work of others effectively, efficiently and in a way which provides leadership at an appropriate level, whether technical or commercial. Leadership is not necessarily about having a formal line management role. In matrix management and other types of organisational structure, where Incorporated Engineers are working within complex and varied working relationships, they will provide leadership to achieve objectives. This competence is also about the ability to consider and identify improvements to quality.	The applicant shall demonstrate that they: 1. Plan the work and resources needed to enable effective implementation of engineering tasks and projects	• Identifying factors affecting the project implementation • Carrying out holistic and systematic risk identification, assessment and management • Preparing and agreeing implementation plans and method statements • Securing the necessary resources and confirming roles in a project team • Applying the necessary contractual arrangements with other stakeholders (clients, subcontractors, suppliers, etc)
	2. Manage (organise, direct and control), programme or schedule, budget and resource elements of engineering tasks or projects	• Operating appropriate management systems • Working to the agreed quality standards, programme and budget, within legal and statutory requirements • Managing work teams, coordinating project activities • Identifying variations from quality standards, programme and budgets, and taking corrective action • Evaluating performance and recommending improvements
	3. Manage teams, or the input of others, into own work and assist others to meet changing technical and management needs	• Agreeing objectives and work plans with teams and individuals • Reinforcing team commitment to professional standards • Leading and supporting team and individual development • Assessing team and individual performance, and providing feedback • Seeking input from other teams or specialists where needed and managing the relationship
	4. Take an active role in continuous quality improvement.	• Ensuring the application of quality management principles by team members and colleagues • Managing operations to maintain quality standards eg ISO 9000, EQFM • Evaluating projects and making recommendations for improvement • Implementing and sharing the results of lessons learned

Competence		Examples of evidence
D. Communication and interpersonal skills **Incorporated Engineers shall demonstrate effective communication and interpersonal skills.** This is the ability to work with others constructively, to explain ideas and proposals clearly and to discuss issues objectively and constructively.	The applicant shall demonstrate that they: 1. Communicate effectively with others, at all levels, in English	• Contributing to, chairing and recording meetings and discussions • Preparing communications, documents and reports on technical matters • Exchanging information and providing advice to technical and non-technical colleagues • Engaging or interacting with professional networks
	2. Clearly present and discuss proposals, justifications and conclusions	• Preparing and delivering appropriate presentations • Managing debates with audiences • Feeding the results back to improve the proposals • Contributing to the awareness of risk
	3. Demonstrate personal and social skills and awareness of diversity and inclusion issues.	• Knowing and managing own emotions, strengths and weaknesses • Being confident and flexible in dealing with new and changing interpersonal situations • Identifying, agreeing and working towards collective goals • Creating, maintaining and enhancing productive working relationships, and resolving conflicts • Being supportive of the needs and concerns of others, especially where this relates to diversity and inclusion

Competence		Examples of evidence
E. Personal and professional commitment **Incorporated Engineers shall demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.** This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. An Incorporated Engineer should set a standard and example to others with regard to professionalism.	The applicant shall demonstrate that they: 1. Understand and comply with relevant codes of conduct	• Demonstrating compliance with your Licensee's Code of Professional Conduct • Identifying aspects of the Code particularly relevant to your role • Managing work within all relevant legislative and regulatory frameworks, including social and employment legislation
	2. Understand the safety implications of their role and manage, apply and improve safe systems of work	• Identifying and taking responsibility for your own obligations for health, safety and welfare issues • Managing systems that satisfy health, safety and welfare requirements • Developing and implementing appropriate hazard identification and risk management systems and culture • Managing, evaluating and improving these systems • Applying a sound knowledge of health and safety legislation, for example: HASAW 1974, CDM regulations, ISO 45001 and company safety policies
	3. Understand the principles of sustainable development and apply them in their work	• Operating and acting responsibly, taking account of the need to progress environmental, social and economic outcomes simultaneously • Recognising how sustainability principles, as described in the Guidance on Sustainability on page 48 can be applied in your day-to-day work • Providing products and services which maintain and enhance the quality of the environment and community, and meet financial objectives • Understanding and encouraging stakeholder involvement in sustainable development • Using resources efficiently and effectively • Taking action to minimise environmental impact in your area of responsibility

Competence		Examples of evidence
E. Personal and professional commitment (continued)	The applicant shall demonstrate that they: 4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice	• Undertaking reviews of your own development needs • Planning how to meet personal and organisational objectives • Carrying out and recording planned and unplanned CPD activities • Maintaining evidence of competence development • Evaluating CPD outcomes against any plans made • Assisting others with their own CPD
	5. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner.	• Understanding the ethical issues that you may encounter in your role • Giving an example of where you have applied ethical principles as described in the Statement of Ethical Principles on page 47 • Giving an example of where you have applied or upheld ethical principles as defined by your organisation or company

The Chartered Engineer (CEng) Standard

Chartered Engineers develop solutions to complex engineering problems using new or existing technologies, and through innovation, creativity and technical analysis.

Chartered Engineers shall demonstrate:

- The theoretical knowledge to solve problems in new and established technologies and to develop new analytical techniques
- Successful application of the knowledge to deliver innovative products and services or taking technical responsibility for complex engineering systems
- Responsibility for the financial and planning aspects of projects, sub-projects or tasks
- Leadership and development of other professional staff through management, mentoring or coaching
- Effective interpersonal skills in communicating technical matters
- Understanding of the safety and sustainability implications of their work, seeking to improve aspects where feasible
- Commitment to professional engineering values

A Chartered Engineer will be able to demonstrate their competence in all of the areas listed, but the depth and extent of their experience and competence will vary with the nature and requirements of their role. They will demonstrate a level of competence and commitment in each area, (A1–E5), at a level which is consistent with their specific role. It is to be expected that they will have a higher level of competence in some areas than others and their role may provide limited experience in certain areas. However, they need to demonstrate an understanding of, and familiarity with, the key aspects of competence in all areas as a minimum requirement while demonstrating higher levels of competence in those areas which are critical to their role. Overall, they will demonstrate an appropriate balance of competences to perform their role effectively at Chartered Engineer level.

The examples of evidence are intended as guidance to help identify activities that might demonstrate the required competence and commitment for Chartered Engineer registration. They are intended as examples only as the most appropriate evidence will vary with each individual role. The list is not exhaustive and other types of evidence might be valid. There is no requirement to provide multiple examples of evidence for each area of competence, but examples from two or three projects or tasks would be useful.

Competence		Examples of evidence
A. Knowledge and understanding **Chartered Engineers shall use a combination of general and specialist engineering knowledge and understanding to optimise the application of advanced and complex systems.** This competence is about the ability to understand underpinning technical principles relevant to the applicant's area of practice and applying them to develop technical solutions. This could involve technical solutions for novel problems or dealing with significant technical complexity. This may involve the integration of a range of technologies and consideration of other factors. This competence requires that an applicant is maintaining and developing their knowledge in their field of practice and not just that required for specific tasks.	The applicant shall demonstrate that they: 1. Have maintained and extended a sound theoretical approach to enable them to develop their particular role	• Formal training related to your role • Learning and developing new engineering knowledge in a different industry or role • Understanding the current and emerging technology and technical best practice in your area of expertise • Developing a broader and deeper knowledge base through research and experimentation • Learning and developing new engineering theories and techniques in the workplace
	2. Are developing technological solutions to unusual or challenging problems, using their knowledge and understanding and/or dealing with complex technical issues or situations with significant levels of risk.	• Carrying out technical research and development • Developing new designs, processes or systems based on new or evolving technology • Carrying out complex and/or non-standard technical analyses • Developing solutions involving complex or multi-disciplinary technology • Developing and evaluating continuous improvement systems • Developing solutions in safety-critical industries or applications

Competence		Examples of evidence
B. Design, development and solving engineering problems **Chartered Engineers shall apply appropriate theoretical and practical methods to the analysis and solution of engineering problems.** This competence is about the ability to apply engineering knowledge effectively and efficiently to the individual tasks which need to be undertaken in the applicant's role.	The applicant shall demonstrate that they: 1. Take an active role in the identification and definition of project requirements, problems and opportunities	• Identifying projects or technical improvements to products, processes or systems • Preparing specifications, taking account of functional and other requirements • Establishing user requirements • Reviewing specifications and tenders to identify technical issues and potential improvements • Carrying out technical risk analysis and identifying mitigation measures • Considering and implementing new and emerging technologies
	2. Can identify the appropriate investigations and research needed to undertake the design, development and analysis required to complete an engineering task and conduct these activities effectively	• Identifying and agreeing appropriate research methodologies • Investigating a technical issue, identifying potential solutions and determining the factors needed to compare them • Identifying and carrying out physical tests or trials and analysing and evaluating the results • Carrying out technical simulations or analysis • Preparing, presenting and agreeing design recommendations, with appropriate analysis of risk, and taking account of cost, quality, safety, reliability, accessibility, appearance, fitness for purpose, security (including cyber security), intellectual property constraints and opportunities, and environmental impact

Competence		Examples of evidence
B. Design, development and solving engineering problems (continued)	The applicant shall demonstrate that they: 3. Can implement engineering tasks and evaluate the effectiveness of engineering solutions.	• Ensuring that the application of the design results in the appropriate practical outcome • Implementing design solutions, taking account of critical constraints, including due concern for safety, sustainability and disposal or decommissioning • Identifying and implementing lessons learned • Evaluating existing designs or processes and identifying faults or potential improvements including risk, safety and life cycle considerations • Actively learning from feedback on results to improve future design solutions and build best practice

Competence		Examples of evidence
C. Responsibility, management and leadership **Chartered Engineers shall demonstrate technical and commercial leadership.** This competence is about the ability to plan the applicant's own work and manage or specify the work of others effectively, efficiently, and in a way which provides leadership at an appropriate level, whether technical or commercial. Leadership is not necessarily about having a formal line management role. In matrix management and other types of organisational structure, where Chartered Engineers are working within complex and varied working relationships, they will provide leadership to achieve objectives. This competence is also about the ability to consider and identify improvements to quality.	The applicant shall demonstrate that they: 1. Plan the work and resources needed to enable effective implementation of a significant engineering task or project	• Preparing budgets and associated work programmes for projects or tasks • Systematically reviewing the factors affecting the project implementation including safety, sustainability and disposal or decommissioning considerations • Carrying out a task or project risk assessment and identifying mitigation measures • Leading on preparing and agreeing implementation plans and method statements • Negotiating and agreeing arrangements with customers, colleagues, contractors and other stakeholders, including regulatory bodies • Ensuring that information flow is appropriate and effective
	2. Manage (organise, direct and control), programme or schedule, budget and resource elements of a significant engineering task or project	• Operating or defining appropriate management systems including risk registers and contingency systems • Managing the balance between quality, cost and time • Monitoring progress and associated costs and cost forecasts, taking appropriate actions when required • Establishing and maintaining appropriate quality standards within legal and statutory requirements • Interfacing effectively with customers, contractors and other stakeholders

Competence		Examples of evidence
C. Responsibility, management and leadership (continued)	The applicant shall demonstrate that they: 3. Lead teams or technical specialisms and assist others to meet changing technical and managerial needs	• Agreeing objectives and work plans with teams and individuals • Reinforcing team commitment to professional standards • Leading and supporting team and individual development • Assessing team and individual performance, and providing feedback • Seeking input from other teams or specialists where needed and managing the relationship • Providing specialist knowledge, guidance and input in your specialism to engineering teams, engineers, customers, management and relevant stakeholders • Developing and delivering a teaching module at Masters level, or leading a University research programme
	4. Bring about continuous quality improvement and promote best practice.	• Promoting quality throughout the organisation as well as its customer and supplier networks • Developing and maintaining operations to meet quality standards eg ISO 9000, EQFM • Supporting or directing project evaluation and proposing recommendations for improvement • Implementing and sharing the results of lessons learned

Competence		Examples of evidence
D. Communication and interpersonal skills **Chartered Engineers shall demonstrate effective communication and interpersonal skills.** This is the ability to work with others constructively, to explain ideas and proposals clearly and to discuss issues objectively and constructively.	The applicant shall demonstrate that they: 1. Communicate effectively with others, at all levels, in English	• Preparing reports, drawings, specifications and other documentation on complex matters • Leading, chairing, contributing to and recording meetings and discussions • Exchanging information and providing advice to technical and non-technical colleagues • Engaging or interacting with professional networks
	2. Clearly present and discuss proposals, justifications and conclusions	• Contributing to scientific papers or articles as an author • Preparing and delivering presentations on strategic matters • Preparing bids, proposals or studies • Identifying, agreeing and leading work towards collective goals
	3. Demonstrate personal and social skills and awareness of diversity and inclusion issues.	• Knowing and managing own emotions, strengths and weaknesses • Being confident and flexible in dealing with new and changing interpersonal situations • Identifying, agreeing and working towards collective goals • Creating, maintaining and enhancing productive working relationships, and resolving conflicts • Being supportive of the needs and concerns of others, especially where this relates to diversity and inclusion

Competence		Examples of evidence
E. Personal and professional commitment **Chartered Engineers shall demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.** This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. A Chartered Engineer should set a standard and example to others with regard to professionalism.	The applicant shall demonstrate that they: 1. Understand and comply with relevant codes of conduct	• Demonstrating compliance with your Licensee's Code of Professional Conduct • Identifying aspects of the Code which are particularly relevant to your role • Being aware of the legislative and regulatory frameworks relevant to your role and how they conform to them • Leading work within relevant legislation and regulatory frameworks, including social and employment legislation
	2. Understand the safety implications of their role and manage, apply and improve safe systems of work	• Identifying and taking responsibility for your own obligations and ensuring that others assume similar responsibility for health, safety and welfare issues • Ensuring that systems satisfy health, safety and welfare requirements • Developing and implementing appropriate hazard identification and risk management systems and culture • Managing, evaluating and improving these systems • Applying a sound knowledge of health and safety legislation, for example: HASAW 1974, CDM regulations, ISO 45001 and company safety policies

Competence		Examples of evidence
E. Personal and professional commitment (continued)	The applicant shall demonstrate that they: 3. Understand the principles of sustainable development and apply them in their work	• Operating and acting responsibly, taking account of the need to progress environmental, social and economic outcomes simultaneously • Providing products and services which maintain and enhance the quality of the environment and community, and meet financial objectives • Recognising how sustainability principles, as described in the Guidance on Sustainability on page 48, can be applied in your day-to-day work • Understanding and securing stakeholder involvement in sustainable development • Using resources efficiently and effectively in all activities • Taking action to minimise environmental impact in your area of responsibility
	4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice	• Undertaking reviews of your own development needs • Planning how to meet personal and organisational objectives • Carrying out planned and unplanned CPD activities • Maintaining evidence of competence development • Evaluating CPD outcomes against any plans made • Assisting others with their own CPD
	5. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner.	• Understanding the ethical issues that you may encounter in your role • Giving an example of where you have applied ethical principles as described in the Statement of Ethical Principles on page 47 • Giving an example of where you have applied or upheld ethical principles as defined by your organisation or company

Comparison table for EngTech, IEng and CEng Standards

This table can also be downloaded as a PDF, along with a version which includes examples of the types of evidence.
Please see: www.engc.org.uk/ukspec

Engineering Technician (EngTech)	Incorporated Engineer (IEng)	Chartered Engineer (CEng)
Engineering Technicians apply proven techniques and procedures to the solution of practical engineering problems. Engineering Technicians shall demonstrate: • Engineering knowledge and understanding to apply technical and practical skills • Evidence of their contribution to either the design, development, manufacture, commissioning, decommissioning, operation or maintenance of products, equipment, processes or services • Supervisory or technical responsibility • Effective interpersonal skills in communicating technical matters • The ability to operate in accordance with safe systems of work and to demonstrate appropriate understanding of the principles of sustainability • Commitment to professional engineering values.	Incorporated Engineers maintain and manage applications of current and developing technology, and may undertake engineering design, development, manufacture, construction and operation. Incorporated Engineers shall demonstrate: • The theoretical knowledge to solve problems in developed technologies using well proven analytical techniques • Successful application of their knowledge to deliver engineering projects or services using established technologies and methods • Contribution to the financial and planning aspects of projects or tasks and to leading and developing other professional staff • Effective interpersonal skills in communicating technical matters • The ability to specify and operate to safe systems of work and to demonstrate appropriate consideration of the principles of sustainability • Commitment to professional engineering values.	Chartered Engineers develop solutions to complex engineering problems using new or existing technologies, and through innovation, creativity and technical analysis. Chartered Engineers shall demonstrate: • The theoretical knowledge to solve problems in new and established technologies and to develop new analytical techniques • Successful application of the knowledge to deliver innovative products and services and/or taking technical responsibility for complex engineering systems • Responsibility for the financial and planning aspects of projects, sub-projects or tasks • Leadership and development of other professional staff through management, mentoring or coaching • Effective interpersonal skills in communicating technical matters • Understanding of the safety and sustainability implications of their work, seeking to improve aspects where feasible • Commitment to professional engineering values.

Engineering Technician (EngTech)	Incorporated Engineer (IEng)	Chartered Engineer (CEng)
The Competence and Commitment Standard for Engineering Technicians For guidance and examples of types of evidence that demonstrate the required competence and commitment for registration as an Engineering Technician, see the table on pages 20–23. Engineering Technicians must be competent throughout their working life, by virtue of their education, training and experience in the following ways:	**The Competence and Commitment Standard for Incorporated Engineers** For guidance and examples of types of evidence that demonstrate the required competence and commitment for registration as an Incorporated Engineer, see the table on pages 25–30. Incorporated Engineers must be competent throughout their working life, by virtue of their education, training and experience in the following ways:	**The Competence and Commitment Standard for Chartered Engineers** For guidance and examples of types of evidence that demonstrate the required competence and commitment for registration as a Chartered Engineer, see the table on pages 32–39. Chartered Engineers must be competent throughout their working life, by virtue of their education, training and experience in the following ways:
A. Knowledge and understanding **Engineering Technicians shall use engineering knowledge and understanding to apply technical and practical skills.** The applicant shall demonstrate that they: 1. Review and select appropriate techniques, procedures and methods to undertake tasks 2. Use appropriate scientific, technical or engineering principles.	A. Knowledge and understanding **Incorporated Engineers shall use a combination of general and specialist engineering knowledge and understanding to apply existing and emerging technology**. The applicant shall demonstrate that they: 1. Have maintained and extended a sound theoretical approach to the application of technology in engineering practice 2. Use a sound evidence-based approach to problem-solving and contribute to continuous improvement.	A. Knowledge and understanding **Chartered Engineers shall use a combination of general and specialist engineering knowledge and understanding to optimise the application of advanced and complex systems**. The applicant shall demonstrate that they: 1. Have maintained and extended a sound theoretical approach to enable them to develop their particular role 2. Are developing technological solutions to unusual or challenging problems, using their knowledge and understanding and/or dealing with complex technical issues or situations with significant levels of risk.

Engineering Technician (EngTech)	Incorporated Engineer (IEng)	Chartered Engineer (CEng)
B. Design, development and solving engineering problems	B. Design, development and solving engineering problems	B. Design, development and solving engineering problems
Engineering Technicians shall contribute to the design, development, manufacture, construction, commissioning, decommissioning, operation or maintenance of products, equipment, processes, systems or services. The applicant shall demonstrate that they: 1. Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions 2. Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact.	**Incorporated Engineers shall apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate, maintain, decommission and recycle engineering processes, systems, services and products.** The applicant shall demonstrate that they: 1. Identify, review and select techniques, procedures and methods to undertake engineering tasks 2. Contribute to the design and development of engineering solutions 3. Implement design solutions for equipment or processes and contribute to their evaluation.	**Chartered Engineers shall apply appropriate theoretical and practical methods to the analysis and solution of engineering problems.** The applicant shall demonstrate that they: 1. Take an active role in the identification and definition of project requirements, problems and opportunities 2. Can identify the appropriate investigations and research needed to undertake the design, development and analysis required to complete an engineering task and conduct these activities effectively 3. Can implement engineering tasks and evaluate the effectiveness of engineering solutions.

Engineering Technician (EngTech)	Incorporated Engineer (IEng)	Chartered Engineer (CEng)
C. Responsibility, management and leadership **Engineering Technicians shall accept and exercise personal responsibility.** The applicant shall demonstrate that they: 1. Work reliably and effectively without close supervision, to the appropriate codes of practice 2. Accept responsibility for the work of themselves or others 3. Accept, allocate and supervise technical and other tasks.	C. Responsibility, management and leadership **Incorporated Engineers shall provide technical and commercial management.** The applicant shall demonstrate that they: 1. Plan the work and resources needed to enable effective implementation of engineering tasks and projects 2. Manage (organise, direct and control), programme or schedule, budget and resource elements of engineering tasks or projects 3. Manage teams, or the input of others, into own work and assist others to meet changing technical and management needs 4. Take an active role in continuous quality improvement.	C. Responsibility, management and leadership **Chartered Engineers shall provide technical and commercial leadership.** The applicant shall demonstrate that they: 1. Plan the work and resources needed to enable effective implementation of a significant engineering task or project 2. Manage (organise, direct and control), programme or schedule, budget and resource elements of a significant engineering task or project 3. Lead teams or technical specialisms and assist others to meet changing technical and managerial needs 4. Bring about continuous quality improvement and promote best practice.

Engineering Technician (EngTech)	Incorporated Engineer (IEng)	Chartered Engineer (CEng)
D. Communication and interpersonal skills **Engineering Technicians shall use effective communication and interpersonal skills.** The applicant shall demonstrate that they: 1. Communicate effectively with others, at all levels, in English 2. Work effectively with colleagues, clients, suppliers or the public 3. Demonstrate personal and social skills and awareness of diversity and inclusion issues.	D. Communication and interpersonal skills **Incorporated Engineers shall demonstrate effective communication and interpersonal skills.** The applicant shall demonstrate that they: 1. Communicate effectively with others, at all levels, in English 2. Clearly present and discuss proposals, justifications and conclusions 3. Demonstrate personal and social skills and awareness of diversity and inclusion issues.	D. Communication and interpersonal skills **Chartered Engineers shall demonstrate effective communication and interpersonal skills.** The applicant shall demonstrate that they: 1. Communicate effectively with others, at all levels, in English 2. Clearly present and discuss proposals, justifications and conclusions 3. Demonstrate personal and social skills and awareness of diversity and inclusion issues.

Engineering Technician (EngTech)	Incorporated Engineer (IEng)	Chartered Engineer (CEng)
E. Personal and professional commitment **Engineering Technicians shall demonstrate a personal commitment to an appropriate code of professional conduct, recognising obligations to society, the profession and the environment.** The applicant shall demonstrate that they: 1. Understand and comply with relevant codes of conduct 2. Understand the safety implications of their role and apply safe systems of work 3. Understand the principles of sustainable development and apply them in their work 4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice 5. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner.	E. Personal and professional commitment **Incorporated Engineers shall demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.** The applicant shall demonstrate that they: 1. Understand and comply with relevant codes of conduct 2. Understand the safety implications of their role and manage, apply and improve safe systems of work 3. Understand the principles of sustainable development and apply them in their work 4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice 5. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner.	E. Personal and professional commitment **Chartered Engineers shall demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.** The applicant shall demonstrate that they: 1. Understand and comply with relevant codes of conduct 2. Understand the safety implications of their role and manage, apply and improve safe systems of work 3. Understand the principles of sustainable development and apply them in their work 4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice 5. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner.

Continuing Professional Development

Continuing professional development (CPD) is essential for maintaining and enhancing the required competence and commitment, as well as for developing new competences. This obligation underpins the value of the professional titles of EngTech, IEng and CEng, and enables society to have confidence in the engineering profession.

CPD has several purposes:

- To assure continuing competence in a current job
- To prepare for a different role
- To follow a longer-term career development plan
- To enhance professionalism in a wider context than a specific job role.

More details on the nature, purpose and value of CPD can be found in the CPD Policy Statement.

For more information please see: www.engc.org.uk/cpd

CPD Code for Registrants

Engineering professionals should take all necessary steps to maintain and enhance their competence through CPD. In particular, they should:

- Take ownership of their learning and development needs and develop a plan to indicate how they might meet these, in discussion with their employer, as appropriate
- Carry out a variety of development activities, both in accordance with this plan and in response to other opportunities which might arise
- Record their CPD activities
- Reflect on what they have learned or achieved through their CPD activities and record these reflections
- Evaluate their CPD activities against any objectives they have set and record this evaluation
- Review their learning and development plan regularly, following reflection and assessment of future needs
- Support the learning and development of others through activities such as mentoring and sharing professional expertise and knowledge

At Professional Review, all applicants will need to demonstrate how they meet their CPD obligations and show that they understand that this requires an ongoing commitment.

Sampling registrants' CPD records

The Licensees undertake annual random samples of professionally active registrants' CPD records and provide appropriate feedback, as described in the Engineering Council's Regulations for Registration (RfR).

Registrants who are not professionally active (eg retired or on a career break) may request exemption from a sample. The intention behind CPD sampling is not to police registrants, but to encourage a culture in which registrants will naturally engage in CPD and take ownership of their own learning and development.

Recording evidence of CPD undertaken is a requirement of professional registration. Professionally active registrants who persistently do not respond to or engage with requests for CPD records from a Licensee will be removed from the Engineering Council Register.

Professional and Ethical Behaviour

Statement of Ethical Principles

Engineering professionals work to enhance the wellbeing of society. In doing so they are required to maintain and promote high ethical standards and challenge unethical behaviour.

This Statement of Ethical Principles, published by the Engineering Council and the Royal Academy of Engineering, lists four fundamental principles to guide engineers and technicians in their professional life:

- Honesty and integrity
- Respect for life, law, the environment and public good
- Accuracy and rigour
- Leadership and communication

These express the beliefs and values of the profession and are explained in the Statement of Ethical Principles.

For more information please see: www.engc.org.uk/ethics

Guidance for Licensee Codes of Professional Conduct

All registrants are expected to observe the requirements of the Code of Professional Conduct (the Code) of the Licensee they have joined. This Code of Professional Conduct places a personal obligation on its members to act with integrity and in the public interest, in accordance with the Statement of Ethical Principles.

Each Licensee will have appropriate disciplinary processes in place to address breaches of their Code of Professional Conduct.

For more information please see: www.engc.org.uk/conduct

Guidance on Risk

This guidance, published by the Engineering Council, lists six principles to guide and motivate professional engineers and technicians in identifying, assessing, managing and communicating about risk.

For more information please see: www.engc.org.uk/risk

Guidance on Sustainability

This guidance, published by the Engineering Council, lists six principles to guide and motivate professional engineers and technicians when making decisions for clients, employers and society which affect sustainability.

For more information please see: www.engc.org.uk/sustainability

Guidance on Whistleblowing

This guidance, published by the Engineering Council, explains what whistleblowing is and the processes that engineers and technicians should follow when confronted with a potential whistleblowing situation:

For more information please see: www.engc.org.uk/whistleblowing

Guidance on Security

This guidance, published by the Engineering Council, lists six key principles to guide engineers and technicians in identifying, assessing, managing and communicating issues about security.

For more information please see: www.engc.org.uk/security

The Engineering Council reviews its guidance periodically and welcomes comments about this. Licensees may use this to assist them in developing guidance for their members.

For the latest information please see the Engineering Council website: www.engc.org.uk

International Activity

To ensure that professionally registered engineers' skills are recognised internationally, the Engineering Council is active within a number of multilateral mutual recognition agreements with other national engineering bodies. These agreements establish internationally benchmarked standards which allow signatory bodies to recognise each other's academic and professional qualifications, aiding mobility. In particular, the Engineering Council was a founder member of the Washington Accord and has subsequently worked with international partners to develop further agreements. The governance of these sits within the International Engineering Alliance (IEA).

The Engineering Council is a member of:

- The Agreement for International Engineering Technicians (AIET)
- The Dublin Accord (DA)
- The International Engineering Technologists Agreement (IETA)
- The International Professional Engineers Agreement (IPEA)
- The Sydney Accord (SA)
- The Washington Accord (WA)

The Engineering Council is a member of the European Network of Accreditation of Engineering Education (ENAEE), which authorises accreditation and quality assurance agencies to award the EUR-ACE® label to accredited engineering degree programmes. In addition, the Engineering Council works within the European Federation of National Engineering Associations (FEANI) to strengthen the voice of engineers at the European level.

For more information please see: www.engc.org.uk/international

Glossary

AAQA	**Approval and Accreditation of Qualifications and Apprenticeships**. One of the Standards which the **Engineering Council** publishes, along with **AHEP**, **ICT*Tech* Standard**, **RfR** and **UK-SPEC**. AQAA sets out the standards and learning outcomes which must be met for qualifications and apprenticeships to be **approved** for **registration** at all levels, ie **EngTech** or **ICT*Tech***, **IEng** and **CEng**. Previously known as AQAH (Approval of Qualifications and Apprenticeships Handbook). See: www.engc.org.uk/aaqa
Accredited / Accreditation	A process of peer review of a programme in a specified location against published learning outcomes and/or **competences**, including a review of delivery, assessment and facilities. This usually applies to programmes that are not assured externally. This usually involves a visit from a team of professional engineers nominated by **Licensees**. See also: **Approved / Approval**.
AHEP	**Accreditation of Higher Education Programmes**. One of the Standards which the **Engineering Council** publishes, along with **AAQA**, the **ICT*Tech* Standard**, **RfR** and **UK-SPEC**. Working in line with **UK-SPEC**, AHEP sets out the standards for the **accreditation** of higher education programmes in engineering. It also outlines the application process for universities that wish to secure or maintain accreditation of their programmes. Accreditation is carried out by **Licensees** in accordance with these requirements. See: www.engc.org.uk/ahep
AIET	The **Agreement for International Engineering Technicians** is an agreement which works to ensure that professionally registered Engineering Technicians' **competence** is recognised internationally. See International Activity on page 48 or www.ieagreements.org/aiet
Approved / Approval	The process of peer reviewing a programme against published learning outcomes. This involves a review of a qualification or an apprenticeship programme by a number of **professionally registered** engineers. See also: **Accredited / Accreditation**
AQAH	See **AAQA**.

CDM Regulations	**Construction (Design and Management) Regulations 2015**, known as CDM Regulations or CDM 2015, are UK regulations governing construction projects of any type and size. CDM Regulations define responsibilities and place legal duties, enforceable by criminal law, on all parties involved in a construction project.
Chartered Engineer (CEng)	One of the professional titles available to individuals who meet the required standards of **competence** and **commitment**. See page 31 or www.engc.org.uk/ceng
Code of Professional Conduct	Every **Licensee** and **Professional Affiliate** which is licensed by the **Engineering Council** will have its own Code of Professional Conduct. One of the requirements of **professional registration** is demonstrating compliance with the appropriate organisation's Code. See page 47.
Commitment	A set of values, rules of conduct, and obligations that maintain and enhance the reputation of the engineering profession and the individual. Demonstrating both **competence** and commitment is part of the requirement to become **professionally registered** with the **Engineering Council**.
Competence	The ability to carry out appropriate tasks to an effective standard. Achieving competence requires the right level of underpinning knowledge, understanding and skill, as well as a professional attitude. Demonstrating both competence and **commitment** is part of the requirement to become **professionally registered** with the **Engineering Council**.
CPD	**Continuing Professional Development.** The systematic acquisition of knowledge and skills, and the development of personal qualities, to maintain and enhance professional **competence** for current and future roles. All members of **Licensees** have an obligation to carry out CPD and to support the learning of others. See: www.engc.org.uk/cpd
Credit and Qualifications Framework for Wales	The Credit and Qualifications Framework for Wales covers learning from the very initial stages (Entry 1, 2 and 3) to the most advanced (Level 8). It is managed by a strategic operational partnership comprising the Welsh Government, Higher Education Funding Council for Wales (HEFCW) and Qualifications Wales.
Documented Evidence	The written and documented evidence of experience and qualifications which is submitted for a **Professional Review** when applying for **professional registration.**

Dublin Accord (DA)	An international agreement among the bodies responsible for recognising programmes and qualifications for **Engineering Technicians**. It establishes a benchmark for Engineering Technician education across those bodies, and recognises the equivalence of **accredited** or **approved** Engineering Technician programmes. See International Activity on page 48 or www.ieagreements.org/dublin
Engineering Council	The UK regulatory body for the engineering profession. The Engineering Council sets and maintains internationally recognised standards of professional **competence** and ethics and holds the UK register of professional engineers and technicians.
Engineering Technician (EngTech)	One of the professional titles available to individuals who meet the required standards of **competence** and **commitment**. See page 19 or www.engc.org.uk/engtech
EQFM	The **European Quality Foundation Model** for continuous improvement.
EUR-ACE®	A European quality label for recognising **accredited** engineering degree programmes at Bachelors and Masters level. The **Engineering Council** is authorised to award the EUR-ACE® label. See: www.enaee.eu/eur-ace-system
FEANI	The **European Federation of National Engineering Associations**. The **Engineering Council** is the UK member of FEANI. See: www.feani.org
HASAW	**Health and Safety at Work**. Specifically, the 1974 Health and Safety at Work Act, the primary legislation covering occupational health and safety in the UK.
HNC	**Higher National Certificate**.
HND	**Higher National Diploma**.
ICT*Tech*	Information and Communications Technology Technician. One of the professional titles available to individuals who meet the required standards of **competence** and **commitment**. See: www.engc.org.uk/icttech
IEA	**International Engineering Alliance**. A partnership of international organisations across seven agreements that aim to facilitate the recognition of engineering educational qualifications and professional **competence**. See International Activity on page 48 or www.ieagreements.org
IETA	The **International Engineering Technologists Agreement** is an agreement which works to ensure that professionally registered engineering technologists' **competence** is recognised internationally. See International Activity on page 48 or www.ieagreements.org/ieta

Incorporated Engineer (IEng)	One of the professional titles available to individuals who meet the required standards of **competence** and **commitment**. See page 24 or www.engc.org.uk/ieng
Individual Assessment	The route to **professional registration** for individuals without recognised qualifications. See page 16. The other way to achieve professional registration is through **Recognised Qualifications**.
International Professional Engineers Agreement	The International Professional Engineers Agreement is an international agreement for the purposes of recognising substantial equivalence of professional **competence** in engineering. See International Activity on page 48 or www.ieagreements.org/ipea
ISO	The **International Organization for Standardization**. ISO publishes documents such as ISO 45001 the international standard for occupational health and safety and ISO 9000, the international quality standards on quality management and quality assurance.
Licensee	An engineering membership organisation which is licensed by the **Engineering Council** to assess applicants for **professional registration**. Some Licensees are also licensed to approve or accredit programmes of learning. Licensees are sometimes known informally as Professional Engineering Institutions or PEIs. For a full and current list of Licensees see: www.engc.org.uk/licensees
May	In the context of the requirements set out in the Standards, ‘may’ indicates there is permission to do something.
National Engineering Bodies	National engineering bodies responsible for regulation of the profession, such as the **Engineering Council**, or the national academy such as the **Royal Academy of Engineering**.
NVQ	**National Vocational Qualification**. NVQs are qualifications developed and **accredited** according to criteria set out nationally, and that are achieved through assessment and training. In Scotland, they are known as Scottish Vocational Qualification (**SVQ**). To achieve an NVQ, applicants must prove they have the ability to carry out their job to the required standard. NVQs are based on National Occupational Standards that describe the ‘competencies’ expected in any given job role.

PEI (Professional Engineering Institution)	See **Licensee**.
Post-nominal	Letters placed after a person's name which indicate that the person holds a certain position, academic degree, professional **accreditation**, office or honour. Examples of engineering post-nominals include **ICT*Tech*, EngTech**, **IEng** or **CEng**.
Professional Affiliate	An incorporated body or engineering institution which is closely associated with, but not licensed by, the **Engineering Council**. It **may** enter into an agreement with a **Licensee** to process its members for **professional registration**. For a full and current list of Professional Affiliates see: www.engc.org.uk/affiliates
Professional development	The process by which an individual gains professional **competence**. It **may** take place through formal and informal learning, and workplace training and experience.

Professional registration	The process in which an individual is admitted to the **Engineering Council**'s Register as an **Engineering Technician** (EngTech), **Incorporated Engineer** (IEng), **Chartered Engineer** (CEng) or an Information and Communications Technology Technician (**ICT*Tech***). To achieve **professional registration** the individual must demonstrate, via a peer review process by a **Licensee**, that they have met the profession's Standards of **commitment** and **competence**. Individuals who have been awarded a professional registration title **may** use the relevant **post-nominal**.
Professional Review	A peer assessment process to decide whether an individual has met the requirements for **registration**. Professional Review is a holistic assessment of the applicant's **competence** and **commitment** against the relevant sections of **UK-SPEC**. See page 16–17.

Professional Review Interview	A peer assessment process to assess whether an individual has met the requirements for **professional registration**. It is a holistic assessment of the applicant's **competence** and **commitment** against the relevant sections of **UK-SPEC**. The Professional Review Interview is conducted by suitably qualified **registrants**, who make a recommendation whether the applicant has demonstrated the necessary competencies to achieve professional registration. See page 17.
Recognised Qualifications	Qualifications that are recognised as delivering the appropriate learning outcomes to develop an individual's **underpinning knowledge and understanding** for **professional registration**.
Registrant	An individual who holds a **professional registration** title such as **ICT*Tech***, **EngTech**, **IEng** or **CEng**.
Registration	See **Professional Registration**.
RfR	**Regulations for Registration**. One of the Standards which the **Engineering Council** publishes, along with **AAQA**, **AHEP**, **ICT*Tech* Standard** and **UK-SPEC**. **RfR** sets out the rules, for **Licensees**, on the process of awarding **professional registration** titles such as **ICT*Tech***, **EngTech**, **IEng** or **CEng**.
Royal Academy of Engineering (RAEng)	The UK's national academy for engineering that works to advance and promote excellence in engineering. RAEng provides analysis and policy support relating to business and education, invests in the UK's research base to underpin innovation, and works to improve public awareness and understanding of engineering. See: www.raeng.org.uk
Royal Charter	A formal document issued by the monarch granting rights and powers to an individual or an organisation.
SCQF	The **Scottish Credit and Qualifications Framework**. For more information see: www.scqf.org.uk
Shall	In the context of the requirements set out in the Standards, 'shall' indicates there is a requirement to do something (ie it is mandatory).
Should	In the context of the requirements set out in the Standards, 'should' indicates a recommendation to do something.
Statement of Ethical Principles	Published by the **Engineering Council** and the **Royal Academy of Engineering.** Engineering professionals **should** read the Statement of Ethical Principles in conjunction with their relevant **Code of Professional Conduct**. See page 47 or www.engc.org.uk/ethics

SVQ	Scottish Vocational Qualification. See also **NVQ**.
Sydney Accord (SA)	An international agreement among the bodies responsible for **accrediting** engineering technologist degree (**IEng**) programmes. It establishes a benchmark for engineering technologist education across those bodies, and recognises the equivalence of **accredited** engineering technologist programmes. See International Activity on page 48 or www.ieagreements.org/sydney
UK-SPEC	**UK Standard for Professional Engineering Competence and Commitment**. This document, which sets out the **competence** and **commitment** requirements for **registration** as an **EngTech**, **IEng** or **CEng**. UK-SPEC is one of the Standards which the **Engineering Council** publishes, along with **AAQA**, **AHEP**, the **ICT*Tech* Standard** and **RfR**.
Underpinning Knowledge and Understanding	The knowledge and understanding of the principles of science, mathematics and engineering theory that are required to form the basis of engineering **competence** at a professional level.
Washington Accord (WA)	An international agreement among the bodies responsible for **accrediting** engineering degree (**CEng**) programmes. It establishes and benchmarks the standard for professional engineering education across those bodies, and recognises the equivalence of **accredited** engineering progrogrammes.' See International Activity on page 48 or www.ieagreements.org/washington

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Disciplinary Procedure Guidance

"The primary purpose of disciplinary proceedings is not to punish, but to protect the public, to maintain public confidence in the integrity of the profession, and to uphold proper standards of behaviour."
Lord Collins, R (on the application of Coke-Wallis) v ICAEW, Supreme Court, 2011.

1 Introduction

An essential function of a professional institution is self-regulation: the setting and regulation by members of appropriate standards of professional competence and conduct.

The Engineering Council has a duty through its Charter (Article 4.c.) to "*provide guidance on the codes of conduct and disciplinary procedures of Licensed Members and Professional Affiliates*". Requirements to prescribe standards and procedures to the satisfaction of The Engineering Council Board are a condition for the issue of a Licence (Bye-law 15) or approval of Professional Affiliate status (Bye-law 24).

Except in a few specialist disciplines, regulation is voluntary, non-statutory and part of the membership contract between the Institution and the member. Disciplinary procedure is therefore not constrained by legal provisions or precedent related to statutory tribunals except insofar as such provisions may have been imported into the contract.

2 Scope

This document is primarily aimed at the handling of complaints against Engineering Council Registrants received by their licensed institutions but may well be applicable to non-Registrant members. It is also applicable if the Institution becomes aware that a Registrant has been convicted of, or accepted a caution for, a relevant criminal offence.

Guidance for institution Codes of Professional Conduct is published separately.

3 Principles of a disciplinary procedure

- Whether conducted in public or in private, the procedure should be clear, open, fair, unbiased and proportionate; essentially, it should accord with the principles of natural justice;
- All persons involved should respect the confidentiality of the proceedings;
- No person should participate in decision-making in more than one stage of the procedure in any particular case;
- While the procedure is the responsibility of the Institution governing body, it should delegate authority in order to comply with the first and third principles above;

- Judgement by peers. Staff may provide administrative and secretarial support and procedural advice but should not influence or participate in the decision-making process, even if they are members of the Institution;

- No presumption of liability until breach of Code of Professional Conduct admitted or proved. Decisions should be based on the appropriate standard of proof (see 5.5 below).

- Proved breaches of the Code of Professional Conduct should attract sanctions commensurate with the seriousness of the breach;

- More comprehensive processes may be required where there is a ‘licence to practise‘ issue (see 5.3 below), and in particular if the Institution is exercising a statutory regulatory function;

- Training should be given to those involved in assessing and adjudicating complaints;

- Clear timescales should be established for each stage of the procedure and progress should be actively monitored by a senior staff member;

- A written record should be made of each stage of the proceedings. Records should be maintained for a defined minimum period.

4 Authority

The Code of Professional Conduct and Disciplinary Procedure must be authorised by including their key requirements and features in the Institution’s governing document (Bye-laws or Articles of Association). The style and degree of detail will be a matter for each institution and its lawyers, but the minimum recommended content is as follows:

- That the governing body (Council or Board) shall publish in Regulations a Code of Professional Conduct and a Disciplinary Procedure for dealing with alleged breaches of the Code;

- That in doing so the governing body shall have due regard to the related Guidance published by the Engineering Council or a successor regulatory body;

- That members shall uphold the reputation of the Institution and the profession and safeguard the public interest; observe the provisions of the governing document and supporting rules and regulations; comply with the Code of Professional Conduct; and co-operate with the Disciplinary Procedure;

- That the governing body shall have the power to expel or impose other sanctions on a member proved to have breached the Code of Professional Conduct;

- That a member who resigns, or whose membership lapses through non-payment of fees or subscriptions, after a complaint against him has been lodged with the Institution, shall be deemed to remain in membership until completion of the disciplinary process.

The following requirements could be included either in the governing document or within an introduction to the relevant Regulation:

- That the rules governing the Disciplinary Procedure shall cover preliminary investigations, disciplinary hearings, burden of proof, sanctions, appeals and publication of outcomes;

- That all stages of the procedure shall be conducted, and decisions reached, in accordance with natural justice;

5 Components of the Procedure

5.1 **A Code of Professional Conduct** should clearly set out the expectations in respect of professional competence and behaviour in such a way that any legitimate complaint against a member can be framed as an alleged breach of a provision of the code. It should be communicated to and demonstrably accepted by members. They should also be made aware of the disciplinary and appeals procedure. The Code should be reviewed at appropriate intervals and at least biennially.

5.2 Once a complaint has been received **a Preliminary Investigation** will decide whether or not there is a case to answer. Such investigation, which is an administrative, not judicial, process, can be conducted by a small panel, or even one nominated member or employee of the Institution. The investigation should determine first, whether the alleged misconduct would, if admitted or proved, lie within the ambit, or jurisdiction, of the Disciplinary Panel; and secondly, whether there is, or could be, enough evidence to justify an inquiry. If so, evidence should be assembled to assess the validity of the complaint by the Disciplinary Panel. The subject of the complaint should be informed and kept informed of developments; evidence submitted by the complainant should be disclosed to the subject and vice versa.

A decision of ‘no case to answer’ should result in the dismissal of the complaint. The subject and the complainant should be informed of the reason for the decision (lack of jurisdiction or insufficiency of evidence). Records of the complaint, including the evidence, should not be maintained beyond the time limit for any appeal by the complainant against the decision. A finding that there was a ‘case to answer’ should result in a referral to a Disciplinary Panel. The ‘case to answer’ should be framed in detailed and particular terms, clearly related to the Code of Professional Conduct, such that the subject can understand the allegation against him. A minor case to answer should not be summarily or informally dealt with within this stage of the procedure.

The Preliminary Investigation should determine whether any criminal or civil court proceedings related to the alleged misconduct are likely or under way. If so, then the disciplinary hearing should not proceed until court proceedings, including any appeal, are complete, since the court proceedings might otherwise be prejudiced. Where the subject has been convicted of a criminal offence or found liable in a civil court, the disciplinary hearing must separately determine whether the subject’s conduct (including, but not limited to, that proven in court) amounts to a breach of the code of conduct. An adverse court verdict should not in itself form the basis of a complaint.

5.3 **The disciplinary hearing** should be conducted by a **Disciplinary Panel** of not fewer than three senior, experienced and trained members. The Panel should have a Chairman who reports directly to the governing body. The Panel acts as an impartial assessor of the complaint. It also decides sanctions from a list prescribed in Regulations and advises the governing body of its finding.

Panel members should be sufficiently independent of the Institution to avoid any real or perceived bias or conflict of interest, and so should never include current members of its governing body (trustees/directors) or employees. A person who has participated in a Preliminary Investigation should not act as a member of the Panel for the same case. In more serious cases, including where a ‘licence to practise’ or potential loss of livelihood may be involved, or if the subject is an officer or senior member of the Institution, one or more lay members (i.e. persons not from the same discipline or profession as the Institution Panel members) should be included on the Panel. Consideration should be given to inviting a legal adviser to attend to advise the parties on the legal process but not to vote on the decision, particularly for extended disciplinary hearings.

5.4 **The disciplinary process** involves the collection, examination and clarification of evidence. Prejudicial material that is irrelevant to the 'case to answer' should not be presented to the Panel. The complainant and the subject should have timely access to evidence and responses. Where the allegation relates to matter of a specialised nature the Panel should consider engaging an independent expert witness. The Panel may make a decision after examining the written evidence or may decide to hold an extended hearing to which all parties are invited.

The parties to the case are the presenter of the complaint (on behalf of the Institution) and the subject. For relatively straightforward cases the complainant may be permitted to present the complaint in person. For more serious or complex cases the presenter would normally be a person appointed by the Institution for the purpose. However, where the Panel is acting under statutory authority, or where the complaint is of such a nature that the Panel decides that it should be enquired into in the public interest whether or not the complainant wishes to pursue it, the Institution should employ a lawyer to present the complaint. The reason is that there needs to be a clear division between the person presenting and the persons hearing the complaint so that there can be no suggestion of conflict of interest.

Parties involved should be entitled to invite to the hearing either:

- a lawyer, whom they may pay to represent them, including to speak on their behalf; or
- a non-lawyer "McKenzie Friend"[1], who may support, quietly advise and take notes for them but may not speak on their behalf.

Either party should be required to give reasonable advance notice if they intend to be legally represented, so that the other party can arrange legal representation if considered necessary.

A complainant who is not presenting in person should be invited or permitted to attend the proceedings (accompanied if desired by a 'friend') and may be called as a witness, but should have no automatic right of audience.

Consideration should be given to adjourning the hearing if the subject is unable to be present or represented as it is in the interests of all parties that they attend wherever possible to present their cases. Even if the subject fails to appear on the day, a brief adjournment should be considered to allow enquiries to be made.

The hearings should be conducted with transparent fairness. They comprise a statement by the presenter of the complaint (or his representative) and evidence to support it (with any cross-examination of witnesses) followed by a rebuttal by the subject (or his representative) with evidence (which is also open to cross-examination). Additionally, evidence may include written statements, at the Panel's discretion. Neither party should be 'ambushed' with new evidence which has not been disclosed in advance, and Panel members should take account only of evidence which is presented, or elicited in cross-examination, during the hearing. Unlike in a court, however, hearsay evidence may be admissible.

A member who resigns after a complaint has been made, or whose membership would be terminated for non-payment of subscriptions, should be deemed to remain in membership until the disciplinary process has reached its decision. If this decision is that the person be expelled from membership, his deemed membership will allow that to be effected and shown on the record should he ever seek to re-join the same or another institution. This should be stated in the Bye-laws or Articles of Association to which a member should assent at the time of joining the Institution.

5.5 The **burden of proof** is normally the civil standard, the 'balance of probabilities'. Judicial guidance indicates that the standard of proof should be appropriate to the gravity of the matter and

[1] As defined at http://courtwithoutalawyer.co.uk/mckenzie-friends.html

the likely consequences if the alleged breach is upheld. Where serious misconduct, rather than lack of competence, is alleged, or where loss of livelihood would result, the criminal standard, 'beyond reasonable doubt' is likely to be appropriate. There are no other 'in between' standards. The Panel should make clear to the parties which standard is being applied to a particular case. However, the standard of proof applies only to decisions relating to disputed facts. Whether or to what extent the proven facts amount to professional misconduct or fitness to practise is for the Panel to judge.

5.6 If the complaint is admitted or upheld, the Panel determines which section of the Bylaws, Regulations or Code of Professional Conduct has been breached, hears any mitigation and decides the **sanction**. Sanctions may be: expulsion from membership; withdrawal of the practising certificate; suspension of membership or membership privileges (which might nevertheless permit access to facilities for maintenance of CPD or retraining during suspension); removal of registration without expulsion from membership (again to allow for access to CPD or retraining); reprimand accompanied by advice on future actions or retraining. Fines are not appropriate for professional bodies, since sanctions do not represent punishment. Similarly, terms such as 'accused', 'offence', 'guilty', 'verdict' and 'penalty' should be avoided. However, an order for costs could in some circumstances (and if provided for in Regulations) be appropriate, for example if the Institution had found it necessary to engage a lawyer because the subject had given notice of his intention to do so.

5.7 **An appeal process** must exist. It must be available to the complainant following the preliminary stage and to the subject following the disciplinary hearing stage. A reasonable time limit for lodging an appeal should be specified in Regulations. The appeal process consists of two parts: leave (permission) to appeal and, if granted, hearing by an Appeal Panel. The Appeal should be considered by persons who have had no contact with the case beforehand. The Institution might decide to have a legal advisor in attendance for either or both parts of the process.

Leave (Permission) to appeal is not granted automatically and one or more specific grounds should be identified. The normally recognised grounds for appeal are:

- Jurisdiction (whether the alleged misconduct would be within the scope of the provisions of the Bylaws or the code of conduct);
- Procedure (was not followed);
- Perversity (the decision was perverse in the light of the evidence);
- New evidence (which could not reasonably have been produced at the original hearing) and additionally for an appeal against a Disciplinary Panel decision:
- Proportionality (the sanction was disproportionate to the gravity of the breach)

The argument under each ground must stand on its own. Leave to appeal may be granted on two or even more grounds, but should not be granted in response to an accumulation of individually insufficient arguments under two or more grounds.

An appeal against 'no case to answer' should be considered by one person independent of the Institution. In these circumstances only, leave to appeal and the appeal itself may be considered as a single process and be conducted by the same person. If there are valid grounds for appeal he should review the material presented to the Preliminary Investigation, the record of its decision and any additional evidence admitted. If the independent reviewer decides that there is a 'case to answer' the Institution should refer the case to a Disciplinary Panel.

Leave to appeal against a Disciplinary Panel decision should be considered by a panel of three members. If leave to appeal is granted the Institution should with minimum delay convene an **Appeal Panel** comprising at least three senior persons (again, not current members of its governing body or employees) including one lay person independent of the Institution. It should be as independent of the governing body as is practical bearing in mind the need to understand and weigh specialist subject matter. The appeal hearing should follow the same principles as the disciplinary hearing, modified to suit the accepted grounds for appeal; a full re-hearing is not essential in all circumstances.

If the appeal is upheld the Appeal Panel may reverse the decision of the Disciplinary Panel or uphold its decision but reduce the sanction.

5.8 **Appeal to the Engineering Council** is only available if a member, in losing his membership as a result of disciplinary action by the Institution, also loses his registration and the Institution's appeals process has been exhausted. This appeal is carried out under the relevant Engineering Council Regulation. Complaints not amounting to an appeal to the Engineering Council in respect of other matters may result in the Engineering Council discussing the case with the Institution concerned only to confirm that the procedure approved as part of the licensing process had been followed.

5.9 While the **governing body** should be notified of the progress and outcome of a disciplinary case it should not be invited to ratify the finding and sanction, since it has not heard the evidence. If the governing body chooses to discuss a case, any person who is or has been involved in the process should absent himself.

5.10 The Institution should reserve in Regulations the **right to publish details** of established breaches of the Code of Professional Conduct, which will in the case of a Registrant include informing the Engineering Council. This might in fairness extend to publishing, at the request of the subject, notification that a complaint has not been upheld. The Institution must inform the Engineering Council of any expulsion, whether or not the individual is registered by the Institution.

Where a complaint is upheld and the appeal process exhausted, the Engineering Council is responsible for **informing any other institutions** of which the Registrant is known to be a member, so that they may decide what action should be taken. This is particularly important if the person is registered through an institution other than that which has carried out the disciplinary procedure.

5.11 If an individual who is asked to serve on any panel has a **conflict of interest** in relation to any part of the allegations, or has a connection with the subject or the complainant which creates a real danger of bias, or which could cause others to think it could influence his decision, he should declare it and disqualify himself from participating.

6 Records of Proceedings

An impartial record should be made of every preliminary investigation and of each hearing within the disciplinary and appeals process. The record should comprise:

- A copy of all written evidence submitted;
- A summary of the oral evidence in support of the alleged breach and in rebuttal or mitigation, including any salient points elicited in cross-examination;
- A summary of the Panel's reasons for its decision.

Summaries should be in a form similar to minutes of a meeting: they would not be verbatim records but should contain sufficient detail for a reviewer to understand the issues and to be able to judge whether the proceedings had been fairly and properly conducted. Summaries of hearings should not be written by a person who has played any other part in any stage of the proceedings, and should be approved by the panel chairman.

The summary of the Panel's reasons for its decision should be disclosed to both parties with the notification of the decision. Any further disclosure, for example in the event of an appeal, should be made equally (in both timing and content) to both parties.

The Institution should specify minimum periods following completion of a case (or expiry of any period of notice to appeal) for maintenance of written evidence and of summaries. This could be varied depending on the gravity of the matter, but an overall minimum of six [6] years is suggested. Where a member has been expelled from membership and/or registration, the summary should be kept beyond any minimum period specified for re-application. Written (and, if taken, audio) evidence should not normally be kept beyond expiry of any period of notice to appeal.

7 Summary of key elements of the procedure

- A Code of Professional Conduct (which should be reviewed regularly) needs to be communicated to and accepted by members.
- The governing body delegates authority;
- Preliminary investigation;
- Disciplinary hearing (independent panel, consider extended hearings in more serious or complex cases, appropriate burden of proof, sanction);
- Appeal (grounds should be stated, separate panel, Engineering Council role is limited);
- Production and maintenance of records of proceedings;
- Publication of outcome.

8 Natural Justice and the Human Rights Act

The procedure outlined accords with the currently accepted principles of natural justice. It is also considered to be consistent with many of the principles of the "right to a fair trial" contained in Article 6 of the European Convention on Human Rights and given further effect in English law by the Human Rights Act 1998 (HRA). The Engineering Council's view, supported by specialist legal advice, is that HRA generally does not apply to this procedure because institution membership and Engineering Council registration are voluntary and an institution is not a "public authority" or carrying out the functions of a public nature as defined in HRA. Any institution which is undertaking a statutory regulation role is advised to take specialist legal advice to ensure that its procedures are fully HRA compliant. Since the interpretation of HRA and other legislation is continually developing, institutions may consider it prudent to take legal advice from time to time on their procedures.

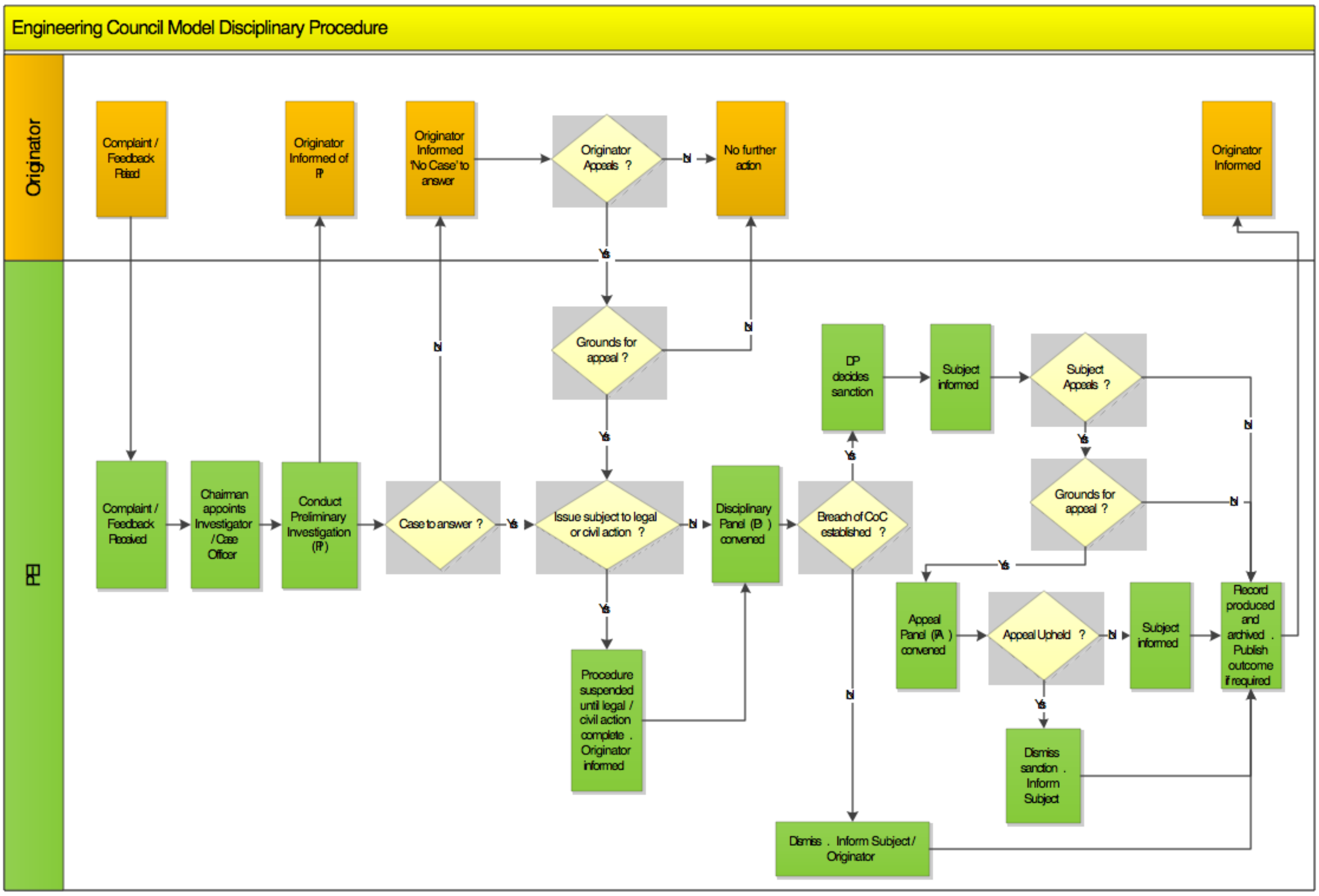
References

- Guidelines for Institutions' Codes of Conduct (Engineering Council: www.engc.org.uk)
- "Role of the Regulator and Prosecuting Body in Professional Disciplinary Proceedings" -Kenneth Hamer, Henderson Chambers, 2009
  http://www.hendersonchambers.co.uk/wp-content/uploads/pdf/role-of-the-regulator-and-prosecuting-body-2009.pdf

Notes

- Where this guidance uses "should", Institutions will wish to consider where it is appropriate to use "must" or "shall" when drafting Bye-laws or Regulations.
- A flowchart of a model disciplinary procedure is at the Annex, but a flowchart should not be used as a substitute for a written regulation or set of rules.

Annex – Model Disciplinary Procedure



13. Committee Reports

13.a. Administrative Procedures Oversight Committee

13.a.i. Budget for Fiscal Year July 1, 2024 to June 30, 2025

	APPROVED BUDGET	*ACTUAL Jun 30, 2023*	*ACTUAL as of Feb 29, 2024*	PROPOSED BUDGET
	Jul '23 - Jun '24	Jul '22 - Jun '23	Jul '23- Feb '24	Jul '24 - Jun '25
Ordinary Income/Expense				
Income				
4000 · REVENUE				
4201 · Application Fees				
4002 · PE Exam Application				
4004 · PLS Exam Application				
4202 · PE Comity Application	130,000.00	137,875.00	97,750.00	140,000.00
4203 · PLS Comity Application	1,000.00	4,375.00	3,000.00	4,500.00
4204 · PE Initial License Application	11,000.00	4,850.00	4,775.00	6,500.00
4205 · PLS Initial License Application	100.00	225.00	150.00	200.00
4206 · PE Reinstatement Application	21,000.00	22,000.00	12,800.00	18,000.00
4207 · PLS Reinstatement Application	300.00	500.00	600.00	800.00
4208 · EI Certification Application	15,000.00	11,750.00	7,290.00	11,000.00
4209 · LSI Certification Application	100.00	0.00	0.00	100.00
Total 4201 · Application Fees	178,500.00	181,575.00	126,365.00	181,100.00
4250 · Renewals & Exam Fees				
4251 · PE/PLS Renewals	685,000.00	700,400.00	414,375.00	690,000.00
4252 · Renewal Late Fees	17,500.00	21,325.00	13,800.00	15,500.00
4253 · PE License Fees	75,000.00	87,750.00	59,825.00	85,000.00
4254 · PLS License Fees	1,000.00	975.00	1,250.00	2,000.00
4255 · NV Specific Exam Fees	2,000.00	1,700.00	1,800.00	2,000.00
Total 4250 · Renewals & Exam Fees	780,500.00	812,150.00	491,050.00	794,500.00
4300 · Other Revenue				
4301 · Replacement Certificate/Pocket Card	300.00	525.00	310.00	300.00
4302 · Stamp Fees	0.00		0.00	0.00
4303 · Interest Income	35,000.00	44,349.66	59,902.02	75,000.00
4304 · Discipline Pd to NV Gen Fund	0.00	15,650.00	10,450.00	0.00
4305 · Investigative Cost Recovery	0.00	9,117.50	2,106.50	0.00
4306 · Miscellaneous	0.00		0.00	0.00
4307 · Firm Registration	90,000.00	90,500.00	76,250.00	90,000.00
4308 · Business Name Request	0.00		0.00	0.00
4310 · PDH Event Income	0.00		0.00	0.00
4311 · Waiver/Document Fees	100.00	25.00	0.00	300.00
4312 · Online Convenience Fees	0.00		0.00	0.00
Total 4300 · Other Revenue	125,400.00	160,167.16	149,018.52	165,600.00
Total 4000 · REVENUE				
Total Income				
Gross Profit	1,084,400.00	1,153,892.16	766,433.52	1,141,200.00
Expense				
5100 · PAYROLL EXPENSES				
5101 · Accrued Benefits		5,040.78		
5102 · Employee Health Insurance	70,000.00	49,040.17	38,661.19	70,000.00
5103 · Employee IRA/SEP	30,000.00	38,521.39	20,157.02	30,000.00
5105 · Payroll Service Fees	1,700.00	1,948.56	1,498.02	1,700.00
5106 · Payroll Taxes				
5107 · Salaries	506,000.00	470,651.65	337,393.87	510,000.00
5108 · Board Salaries	10,000.00	7,425.00	3,450.00	7,500.00
	75,000.00	0.00	0.00	75,000.00
Total 5100 · PAYROLL EXPENSES				
5110 · PAYROLL TAXES				
5111 · FICA	27,400.00	28,953.57	20,036.52	30,000.00
5113 · Medicare	7,000.00	6,824.20	4,892.28	7,000.00
5114 · Modified Business Tax	2,700.00	2,004.50	684.80	2,500.00
5115 · SDI		536.95		700.00
5116 · SUINV	700.00	1,096.26	13.56	0.00
5117 · SUI	0.00		1,186.18	1,200.00
Total 5110 · PAYROLL TAXES				
	26,250.00	0.00	0.00	26,250.00
	655,500.00	612,043.03	427,973.44	660,600.00
6001 · OPERATING EXPENSES				
Non State Owned Office Bldg.				
6002 · Rent	85,000.00	88,724.57	60,063.05	95,000.00
6002.1 · Sub Lease			-750.00	
6003 · Leasehold Improvements				
6003.1 · Deferred Exp-RNO/LAS Office				
6003 · Leasehold Improvements - Other				
Total 6003 · Leasehold Improvements	0.00		0.00	0.00
6004 · Utilities	1,400.00	340.69	861.58	1,400.00
6005 · Telephone/Internet	7,000.00	9,514.70	5,413.68	7,000.00
6005.5 · Janitorial	1,200.00		0.00	0.00
Total Non State Owned Office Bldg.	94,600.00	98,579.96	65,588.31	103,400.00
6006 · Office Supplies	6,000.00	10,837.69	9,370.23	12,000.00
6007 · Equipment/Furniture				
6008 · Furniture				
6008.1 · Deferred Exp-Furniture				

Murray Blaney:
INCR: continued upward trend

Murray Blaney:
INCR: continued upward trend

Murray Blaney:
DECR: previous $ amount based on past fee scale. Adjusted to reflect fee of $25.

Murray Blaney:
DECR: trending down

Murray Blaney:
DECR: trending down

Murray Blaney:
INCR: # of licensees still trending up, but using a conservative $ amount for budgeting

Murray Blaney:
INCR: # of applicants still trending up

Murray Blaney:
INCR: reflects current interest income on CDs

Murray Blaney:
INCR: rent bump per lease agreements

Murray Blaney:
INCR: more certificates, law books and better quality of packaging to prevent damaged returns

6008 · Furniture - Other				
Total 6008 · Furniture				
6009 · Maintenance				
6010 · Equipment Purchases	3,800.00	31,522.26	3,372.36	3,800.00
6011 · Equipment Leasing	5,000.00	3,465.45	2,231.29	5,000.00
6012 · Software				
6012.1 · Deferred Exp-Softward Upgrades				25,000.00
6012.5 · Software	3,000.00	4,081.18	3,928.68	7,000.00
Total 6012 · Software	3,000.00	4,081.18	3,928.68	7,000.00
6015 · Website/Database Hosting	18,000.00	16,125.16	15,000.00	21,000.00
Total 6007 · Equipment/Furniture				
6101 · Insurance				
6102 Workers Comp	3,500.00	3,428.32	1,297.81	3,500.00
6103 · General Liability	2,500.00	2,300.00	1,629.74	2,500.00
6104 · Office Contents	100.00	821.14	0.00	1,000.00
Total 6101 · Insurance	6,100.00	6,549.46	2,927.55	6,100.00
6201 · Postage				
6202 · Postage	5,000.00	13,699.16	6,305.65	10,000.00
6202.5 E-Postage	3,000.00	2,300.00	2,600.00	3,500.00
6205 · Postage Renewals	3,000.00	1,630.42	1,294.00	3,000.00
Total 6201 · Postage	11,000.00	17,629.58	10,199.65	16,500.00
6301 · Board Meetings				
6302 · Travel - Out of State	4,000.00		611.61	2,000.00
6303 · Travel - In State	25,000.00	24,602.88	12,999.63	20,000.00
6304 · Board Meeting Expenses	9,000.00	6,298.07	959.05	6,000.00
Total 6301 · Board Meetings	38,000.00	30,900.95	14,570.29	28,000.00
6401 · Printing				
6402 · Printing General	4,000.00	5,699.99	0.00	4,000.00
6404 · Printing NRS/NAC, Blue Book	2,500.00	2,866.02	0.00	2,500.00
Total 6401 · Printing	6,500.00	8,566.01	0.00	6,500.00
6501 · Professional Services				
6502 · Legal				
6503 · Board Meetings	30,000.00	31,458.27	45,270.47	42,500.00
6504 · Regulations/Legislation				
6504.1 · Deferred Exp-Regs/Legislation	20,000.00	232.00	715.00	20,000.00
6504.5 · Regulations/Legislation	12,500.00	12,103.50	487.50	5,000.00
Total 6504 · Regulations/Legislation				
6505 · Discipline	17,500.00	21,489.15	11,421.25	22,500.00
Total 6502 · Legal	60,000.00	65,050.92	57,179.22	70,000.00
6508 · Accounting Fees	25,000.00	25,323.50	22,726.25	30,000.00
6509 · Government Liaison Services				
6509.1 · Def Exp-Government Liaison Services	22,000.00	22,000.00	4,000.00	4,000.00
6509.5 · Government Liaison Services	2,000.00	2,000.00	12,000.00	18,000.00
Total 6509 · Government Liaison Services	2,000.00	2,000.00	12,000.00	18,000.00
6510 · Database/Website Design				
6510.1 · Deferred Exp-Website Update	35,000.00	214.00	1,071.66	5,000.00
6510.2 · Deferred Exp-Database Update	75,000.00	41,218.10	30,080.00	100,000.00
6510.5 · Database/Website Design	5,000.00	712.20	1,056.70	2,000.00
Total 6510 · Database/Website Design	5,000.00	712.20	1,056.70	2,000.00
6511 · Public Outreach (Communications)	17,500.00	5,650.00	9,284.14	17,500.00
6514 · Contract Labor				
6514.1 · Def Exp-Contract Labor	10,000.00	6,811.44	2,950.47	150,000.00
6514.5 · Contract Labor	5,000.00	0.00	1,842.20	5,000.00
Total 6514 · Contract Labor				
6515 · IT Support	20,000.00	28,236.07	16,876.36	20,000.00
Total 6501 · Professional Services				
6550 · Professional Service Fees				
6601 · Program Services				
6604 · NCEES				
6605 · Dues	6,500.00	6,500.00	0.00	6,500.00
6606 · Registration	2,500.00	3,500.00	650.00	3,500.00
6607 · Travel	15,000.00	8,885.50	10,736.88	15,000.00
Total 6604 · NCEES	24,000.00	18,885.50	11,386.88	24,000.00
6608 · Stamp Purchases				
6609 · Investigations				
6610 · State Specific Exam	0.00	0.00	0.00	0.00
6615 · Bank Fees	0.00	6,177.27	490.69	0.00
6616 · Merchant Services Fees	48,000.00	54,628.43	38,124.23	56,000.00
6630 · LAS Office Support	10,000.00	2,275.96	1,403.92	5,500.00
6640 · Workshops				
6640.1 · Deferred Exp-Digital Signature	3,500.00	0.00	333.02	12,000.00
6640.5 · Workshops				
Total 6601 · Program Services				
6700 · Other				
6701 · PDH Event Expense				
6701.1 · Deferred Exp-PDH Event				
Total 6701 · PDH Event Expense				

Murray Blaney:
INCR: software for separation from state NV EIT for Windows 10 operating system, and subscription programs

Murray Blaney:
INCR: include hosting cost for development/launch of new Firm platform

Murray Blaney:
INCR: reflects current state insurance premium

Murray Blaney:
INCR: more certificates/law books being sent + increase number of international licensees + increased number of NV-PS exam takers

Murray Blaney:
DECR: reflects actuals

Murray Blaney:
INCR: reflects projection closer to current year actuals

Murray Blaney:
INCR: Auditor inc of $1,000 + anticpated contractor weekly accounting fees

Murray Blaney:
INCR: move to operating expense for 2025 legislative session

Murray Blaney:
INCR: all rev via online cc payments

Murray Blaney:
DECR: anticipate Mark available in LAS office

6702 · Discipline Pd to NV Gen Fund		15,250.00		
6704 · State Administrative Fees				
6705 · Attorney General	1,000.00	163.00	628.16	1,000.00
6706 · Benefit Services Fund				
6709 · Email - EITS	2,500.00	1,483.99	625.50	3,000.00
6710 · Leg. Counsel Bureau	1,000.00		900.00	1,000.00
6704 · State Administrative Fees - Other				
Total 6704 · State Administrative Fees	4,500.00	1,646.99	2,153.66	5,000.00
6720 · Miscellaneous			474.20	
Total 6700 · Other				
6801 · Training & Conferences				
6802 · Travel - Out of State	12,000.00	14,076.31	1,854.37	12,000.00
6803 · Travel - In State	3,000.00	400.51	0.00	3,000.00
6804 · Registration	3,000.00	4,646.75	3,019.52	3,000.00
Total 6801 · Training & Conferences	18,000.00	19,123.57	4,873.89	18,000.00
6900 · Other Expenses				
Total 6001 · OPERATING EXPENSES	431,000.00	457,968.11	307,060.70	480,300.00
	655,500.00	612,043.03	427,973.44	660,600.00
Total Expense	1,086,500.00	1,070,011.14	735,034.14	1,140,900.00
Net Ordinary Income				
Net Income				
	1,084,400.00	1,153,892.16	766,433.52	1,141,200.00
	-2,100.00	83,881.02	31,399.38	300.00
	165,500.00	70,475.54	39,150.15	316,000.00
				Deferred Expense
	101,250.00	0.00	0.00	101,250.00
				Deferred Payroll
	-268,850.00	13,405.48	-7,750.77	-416,950.00

Narrative for Proposed Budget Fiscal Year July 1, 2024, to June 30, 2025

Revenues are bumped 9% compared to last budget. We continue to see growth in the number of license applications and renewals in Nevada and gains in interest income from investment accounts.

Expenses are budgeted to increase by about 12%. Government liaison services moves from deferred (backlog of regulation updates) to an operating expense item due to upcoming legislative session. Legal services see a bump as do accounting fees. Merchant service fees are up as board revenues are nearly exclusively via online transactions. Software and hosting are budgeted for an increase as we continue to move to cloud based subscriptions in lieu of software purchases, which are an outdated model for software vendors. Payroll expenses see a marginal budget increase.

Deferred expenses are included in the budget to address items that have been identified in the NVBPELS Business Plan. The Business Plan was created to identify the amount of reserve monies needed to address deferred operational expenses. Additionally, there are proposed additional costs associated with the leadership transition and ongoing/pre-existing projects as identified by board chair and board liaison which have been included in the proposed budget as a deferred operational expense.

Proposed budgeted **deferred expenses total $417,250** and include:

- $125,000 for licensing database upgrade/implementation and a new firm registration platform, including associated cloud software costs.
- $24,000 for legal and government liaison fees associated with continued work on catching up on updating regulations and statutes.
- $5,000 for updating website content and structure, mainly to integrate with the new licensing and firm platforms.
- $150,000 for contract labor as part of the transition to new leadership while maintaining institutional knowledge. Also relates to several deferred projects identified by the board chair and board liaison as requiring special expertise to complete. The budgeted amount also includes additional contract labor to assist with scanning compliance files to complete transition from paper to e-files.
- $101,250 ($75k wages + burden) for an additional staff member for realignment of duties to allow a current staff member to focus 75% of their work hours on deferred items in NVBPELS Business Plan
- $12,000 allotted for e-submittal/digital signature in-person seminars planned for fall 2024/spring 2025.

13.b. Legislative Committee

13.b.i. Bill Draft Request for 2025 Legislative Session

NRS 625.193 Examination for licensure as professional engineer: Scope; waiver; administration.

1. The examination for licensure as a professional engineer must consist of:

(a) A~~n~~ **Board recognized** examination on the fundamentals of engineering ~~that must cover the subject matter of a general education or training in engineering~~. If the applicant for licensure as a professional engineer has graduated from an engineering curriculum that is approved by the Board and has ~~15~~ **8** years or more of **active** experience in engineering, the examination on the fundamentals of engineering may be waived by the Board.

(b) A~~n~~ **Board recognized** examination on the principles and practices of engineering that must cover the discipline of engineering in which the applicant is applying for licensure.

~~2. An applicant for licensure as a professional engineer must pass the examination on the fundamentals of engineering or receive a waiver of that requirement before the applicant may take the examination on the principles and practices of engineering.~~

~~3. When determining the content of the examinations on the fundamentals of engineering and the principles and practices of engineering, the Board shall consider the recognized disciplines of engineering and may conform the examination to the particular qualifications of the applicant.~~

4. The Board may require additional examinations for licensure in specialized areas of practice within one or more recognized disciplines of engineering.

~~5. The Board may administer or authorize an accredited college or university that offers a program in engineering approved by the Board to administer the examination on the fundamentals of engineering to persons who are not applicants for licensure as professional engineers in this state.~~

~~6. The Board may prescribe or limit the use of notes, texts and reference materials by applicants who are taking the examinations.~~

7. The Board may require the examinations or any portion of the examinations set forth in this section to be completed:

(a) In writing, with a pen or pencil of a type that has been approved by the Board;

(b) With a computer that has been provided or approved by the Board; or

(c) Orally, in the manner prescribed by the Board.

(Added to NRS by 1997, 1039; A 1999, 2436; 2013, 423)

NRS 625.280 Examination for licensure as professional land surveyor: Scope; waiver; administration.

1. The examination for licensure as a professional land surveyor must consist of:

(a) A~~n~~ **Board recognized** examination on the fundamentals of land surveying ~~that must cover the subject matter of a general land-surveying education or training~~. If the applicant for licensure as a professional land surveyor has **graduated from a land surveying curriculum that is approved by the Board and has** ~~15~~ **8** years or more of **active** experience in land surveying, the examination on the fundamentals of land surveying may be waived **by the Board**. ~~For the purposes of determining the years of experience of an applicant for licensure as a professional land surveyor pursuant to this paragraph, the Board shall consider graduation from a land-surveying curriculum that is approved by the Board to be equivalent to 4 years of experience.~~

(b) A~~n~~ **Board recognized** examination on the principles and practices of land surveying.

~~2. An applicant for licensure as a professional land surveyor must pass the examination on the fundamentals of land surveying or receive a waiver of that requirement before the applicant may take the examination on the principles and practices of land surveying.~~

~~3. The Board may administer or authorize an accredited college or university that offers a program in land surveying approved by the Board to administer the examination on the fundamentals of land surveying to persons who are not applicants for licensure as professional land surveyors in this state.~~

~~4. The Board may prescribe or limit the use of notes, texts and reference materials by applicants who are taking the examinations.~~

~~5. The Board may require the examinations or any portion of the examinations set forth in this section to be completed:~~

~~(a) In writing, with a pen or pencil of a type that has been approved by the Board;~~

~~(b) With a computer that has been provided or approved by the Board; or~~

~~(c) Orally, in the manner prescribed by the Board.~~

[Part 14:198:1919; added 1947, 797; A 1951, 459; 1955, 391]—(NRS A 1965, 1326; 1967, 951; 1989, 784; 1997, 1045; 2013, 423)

Part of the reason for FE Exam waivers might be the result of variability among jurisdictions in licensure standards.

From *The History of NCEES, page 153:*

"Some jurisdictions will waive the requirement for passage of the FE exam for a licensure applicant with long-established practice, and some waive altogether the examination component if the applicant graduated from an EAC/ABET-accredited program in the jurisdiction and had a sufficient amount of acceptable experience."

Also, see pages 166-167:

"In late 2000, President J. Richard Cottingham, P.E., P.L.S., tasked the Engineering Licensure Qualifications Task Force (ELQTF) with considering the engineering licensure system and developing recommendations for possible changes or enhancements...

"ELQTF spent most of 2000–2001 gathering information and discussing the issue of licensure from a variety of perspectives. Concerns with the current system were identified, and concepts and ideas were developed for presentation. During 2001–2002 this information was presented at the Board Presidents' Assembly, zone meetings, and the Annual Meeting. At each meeting, questionnaires were distributed to allow NCEES members to express their thoughts and preferences on both the ELQTF process and the subject of licensure. Several of the other engineering societies participating on the task force did the same with their members and shared their feedback with the task force. In 2002–2003, the task force deliberated the issues and developed recommendations...

"Some of the task force recommendations included that a waiver of the FE examination be allowed in the Model Law for those who possess an EAC/ABET-accredited degree and a Ph.D. or doctorate in engineering."

NCEES Model Law—

230.40 Examinations

A. Classification of Engineering Examinations

This jurisdiction or its designee will provide the following examinations:

1. NCEES Fundamentals of Engineering (FE) examination—The examination consists of subject matters in the fundamentals of engineering.
2. NCEES Principles and Practice of Engineering (PE) examination—The examination consists of subject matters in applied engineering.

This jurisdiction may provide the following examinations:

1. Jurisdictional examinations—The examinations may include jurisdiction laws, procedures, and standards for the practice of engineering.

B. Approval of Applicant for Engineering Examinations

1. NCEES Fundamentals of Engineering (FE) Examination

a. An individual applying to take the FE examination may register with NCEES directly to take the FE examination or, if required, apply to the board for admission to the FE examination.

2. NCEES Principles and Practice of Engineering (PE) Examination

a. An individual will be permitted to sit for the PE examination upon satisfactorily fulfilling all requirements of the jurisdiction.

b. Engineering doctorate degree applicants with an undergraduate degree from a program accredited by the Engineering Accreditation Commission of ABET (EAC/ABET) and with a doctorate degree in engineering from an institution that offers EAC/ABET-accredited undergraduate programs in the doctorate degree field of engineering and with experience that meets the qualifications defined by the board may sit for the PE examination without having taken or passed the FE examination.

13.b.ii. LCB Language Proposed for Board Regulation Changes Related to PLS Standards of Practice – LCB File R007-24

[not available when board packet was published]

13.c. Professional Association Liaison Committee

13.d. Public Outreach Committee

13.e. PLS Standards of Practice Subcommittee

14. Election of Board Chair and Vice Chair

15. Government Liaison Report

16. Bill Draft Requests Proposed by the Legislature

17. Board and Staff Assignments

Action List

BOARD MEETING ITEMS

September 12, 2019 Board Meeting

12. Administrative report by Executive Director

b. Action items related to the 2017-2021 Strategic Plan

Mr DeSart asked that dates be posted on our website of when the Las Vegas board office is staffed. **Staff**

September 21, 2023 Board Meeting

11. Discussion and possible action on delegation of formal hearings to a hearing officer, Nevada Revised Statute 625.150 (5).

Staff to work with Mr MacKenzie and Ms Purcell to gather information on contractor's board hearing officer process and draft proposed changes to the Rules of Practice. **Staff**

16. Discussion and possible action on electronic submittals and digital signatures, Nevada Administrative Code chapter 625, NAC 625.610.

Reconvene taskforce to review current guide (update as needed), explore issues relating to digitally signing submittals with multiple disciplines, and review and advise on entity electronic submittal intake requirements. **Staff**

Develop entry level in-person workshops on preparing and digitally signing electronic submittals. Reach out to stakeholder organizations for opportunities to present/host. **Staff**

January 24, 2024, Board meeting

15.e. PLS Standards of Practice Sub-committee

LCB regulation draft language to be presented for sub-committee consideration. **Staff to schedule with Mr Gingerich.**

18. Status of Board and staff assignments

Prioritize actions items from transition list to those that can be completed in the near-term vs long term items that may be considered for contracting/consulting. **Staff + Ms Purcell**

20. Future meeting topics

Agenda item at March 2024 board meeting to consider WZ candidate presentations and discuss possible board support. **Staff *Done***

March 14, 2024, Board meeting

12.a. Administrative Procedures Oversight Committee, Chair Brent Wright.

Staff to pursue a contract with Albertson Consulting/Big Picture Software for a new online licensing and license renewal software system, including hosting and maintenance. Contract to include deliverables and milestones. Also include a 24-month maintenance contract extension with InLumon for the current platform. **Staff**

12.b. Legislative Committee report, Chair Greg DeSart.

NRS 625.183 to be removed from possible BDR; Add “active” in front of experience in NRS 625.193 and NRS 625.280; NAC 625.310 add semicolon to 3. (b) for consistency. **Staff**

19. Discussion and identification of topics for future meetings.

Restart the program of inviting licensees as guests to join board meetings. **Staff**

COMMITTEE ITEMS

PROFESSIONAL ASSOCIATION LIAISON COMMITTEE

February 9, 2021 Meeting

7. Discuss board’s updated Strategic Plan—goals and strategies related to PAL Committee and discuss possible tactics/action items.

Goal 2: Licensure – Strategy (5): *Provide options to meet land surveyor educational requirements*

Consider forming sub-committee to contact with UNLV Dean of Engineering about creating a minor in land surveying. **Ms Mamola**

March 13, 2024 Meeting

7. Open discussion topics.

Consider pathway for adoption of datum updates and the Board’s role in the at process. Review text proposed by NALS and text adopted by the NC Board. Connect with NDOT to determine their position. Consider meeting with local GIS interest groups to gauge their views. **Ms Mamola/Staff**

ADMINISTRATIVE PROCEDURES OVERSIGHT COMMITTEE

APOC - March 30, 2021 Meeting

5. Discuss third-party verification of digital signatures for licensees of the board and possible role of the board in the verification process including cost participation.

Continue to monitor other states regulations relating to third-party verification requirements. **Staff**

March 30, 2023, Meeting

5. Consider executive director work performance and salary.

Update salary study information (use 2017 document as template). **Staff**

6. Consider proposed budget for fiscal year July 1, 2023 to June 30, 2024.

Suggested that options be explored that could be of some tangible benefit to existing licensees to accelerate the reduction of the reserve. Prepare evaluation of options to be considered by APOC. **Staff**

May 10, 2023, Meeting

6. Consider proposed budget for fiscal year July 1, 2023 to June 30, 2024.

Projections for health insurance costs in consideration of possible expansion of board covered expenses. **Ms Mamola**

December 14, 2023, Interim board meeting

APOC delegated task by board chair to search for Executive Director candidates. ***Done***

PUBLIC OUTREACH COMMITTEE

Public Outreach Committee - January 12, 2023 Meeting

6. Consider and discuss public communications/social media efforts and available budget for remainder of fiscal year, January 1, 2023, to June 30, 2023).

Identify schedule of career fairs at UNR and UNLV and consider a NVBPELS booth. **Staff** ***Done***

LEGISLATIVE COMMITTEE

Discuss proposed NAC 625.310(4), requiring engineering applicants to pass a short exam on chapter 625 of NRS and NAC.

Short exam on chapter 625 of NRS and NAC to be updated by staff (periodically) and submitted to LegComm for approval.

This item has been paused pending the amendment to NAC removing the short exam requirement and replacing it with an attestation of NRS/NAC review by the applicant.

Consider future licensing of engineers as it relates to emerging technologies and blended engineering degrees including considering retention and/or modification of specific disciplines licensed by the board.

Develop position statement before end of FY 2023/2024 of the issues to be addressed. This item encompasses discipline specific vs PE state discussion. Mr Fyda and Ms Mamola discuss and identify possible solutions to the issues identified by position statement.

Possible NRS changes for consideration

- NRS 625.193
Discussion on time period for waiver of the FE + additional housekeeping edits
- NRS 625.270
Consider impacts of NCEES PLSS module release Oct 2027 + additional housekeeping edits
- NRS 625.280
Discussion on time period for waiver of the FS + additional housekeeping edits

Finalize proposed amendment text at May 9 board meeting. **Staff**
Complete BDR collateral. **Staff**
Meet with McDonald Carano staff re bill sponsor. **Staff**

Possible NAC changes for consideration

- NAC 625.310
Review text has been drafted, but will consider NCEES model law before finalizing

Schedule for NAC changes currently under review

Executive Order regulation changes/repeals

R-files adopted March 14, 2024, Public Hearing have been packaged and sent to LCB for inclusion in the next Legislative Commission meeting.

Contract and PLS regulation changes/repeals

LCB has assigned the following R-file #s
R006-24 for NAC 625.545 (written contract). Draft back from LCB. Consider dates for possible Adoption Hearing. **Staff**

R007-24 for PLS amendments. Completed meetings and discussed drafter edits with LCB staff. Awaiting final draft for review. Will be presented to PLS Standards of Practice Sub-committee for review. **Staff**

STRATEGIC PLAN ITEMS

DRAFT *Annual Report* for APOC/Public Outreach committee review.

BUSINESS PLAN ITEMS

Electronic submittals + digital signing of documents.

System database comprehensive upgrade.
Website effectiveness.

18. Future Meeting Dates

BOARD MEETING DATES

Board meetings are typically scheduled for the second Thursday of every other month.

July 18, 2024 — Tonopah

September 12, 2024 — Las Vegas

November 14, 2024 — Reno

January 16, 2025 — Las Vegas

March 13, 2025 — Reno

May 8, 2024 — Las Vegas

Future NCEES Meetings

NCEES Western Zone Interim Meetings

May 16–18, 2024 — Bozeman, Montana

NCEES Annual Meetings

August 14–17, 2024 — Chicago, Illinois

August 19-22, 2025 — New Orleans, Louisiana

19. Topics for Future Meetings

20. Public Comment

21. Adjournment