

NER Direct Applicant Self Assessment Professional Engineer



DETAILS

Name: EA ID Number

Area/s of Engineering Requested

GIVE A BRIEF SUMMARY HOW YOU THINK YOU MEET THE ELEMENT OF COMPETENCE.

ELEMENT OF COMPETENCE

DEAL WITH ETHICAL ISSUES

While working as a Structural Engineer, I strictly adhered to work ethics and organizational policies and procedures, including signing non-disclosure agreements. For example, I encountered a complex ethical issue that revolved around ensuring transparency and fairness in the bidding process while working with multiple Main Contractors on the same project. The central problem was the potential conflict of interest between our ethical duty to each client and the competitive nature of the construction industry. Multiple Main Contractors approached our engineering team to design and provide an overall onsite duration plan (commonly known as a work program) for the same project. It was understood that the construction duration proposed by a Main Contractor played a critical role in securing contracts from the principal or client. The dilemma arose because our firm was tasked with designing the project for each of these Main Contractors, potentially putting us in a position where we could favor one contractor over another. This situation raised ethical concerns regarding impartiality, confidentiality, and the duty to act in the best interest of our clients.

I identified a significant potential impact of this ethical issue because it could lead to a breach of trust with our clients, eroding their confidence in our ability to provide impartial and confidential services. Therefore, to address this ethical issue and ensure transparency and fairness, I implemented a comprehensive solution that involved the active participation of our clients, such as, during that time, I engaged the Principals in open discussions about the situation, explaining the potential conflict of interest and ethical concerns. Then, in collaboration with the Principals, I appointed an independent third party who supervised whole bidding process. This third party was responsible for ensuring that the work programs submitted by Main Contractors were evaluated impartially and confidentially. Throughout this process, I implemented measures to safeguard the confidentiality of project details, i.e. I recommended that information must be compartmentalized, and non-disclosure agreements were reinforced to prevent any unauthorized sharing of sensitive project data. Also, I provided regular reports to the Principals/client to keep them informed about the progress of the bidding process, emphasizing transparency and adherence to ethical principles.

Furthermore, by following ethical consideration, I performed onsite inspection of all construction work as per QA/QC regulations to ensure that the work aligned with safe work method statements, quality plans, approved drawings, and specifications. I recognized that any negligence in the construction process could have adverse impacts on the project's end users. Therefore, I implemented an immediate reporting and accountability procedure so that in case of any field accidents, incidents, near misses, or other safety concerns witnessed by members of our onshore team must be promptly reported to the Site Supervisor. The Site Supervisor will, in turn, communicate these incidents to the safety representatives without delay, using the quickest means available to maintain safety on the site as per OSHA regulations.

As the Engineer in charge, I understood my ethical responsibility in safeguarding the rights and safety of others. For example, during the initial phase of the project, I identified a discrepancy in the original structural plans that had the potential to compromise the safety of construction workers and the integrity of the building itself. After this, I arranged a team meeting where I presented the issue transparently, highlighting the potential risks and safety concerns. It was clear that resolving this discrepancy would require a considerable adjustment to our project timeline and additional resources, which could have strained our budget and client expectations. Together with my team, we discussed various solutions, considering not only the technical aspects but also the human element involved. Also, I decided to halt construction temporarily to conduct a thorough structural analysis and redesign the affected sections of the building to ensure optimal safety. During this tenure, I actively sought input from various team members and engaged in open discussions to maintain transparency in my decision-making process. I valued the input provided by each team member, adhering to ethical policies, and ensured that all suggestions were considered. Also, I maintained integrity by honestly reporting the performance of each team member involved in this situation to the project manager, allowing for well-deserved recognition.

and awards for deserving teammates. This approach developed a healthy and collaborative working environment, ultimately leading to the timely resolution of the issue

PRACTISE COMPETENTLY

I have developed competence in engineering practice through a combination of factors, including hands-on experience in both preconstruction and construction phases, a strong educational background in the field of engineering, and several years of dedicated engagement in continuous professional development. My engineering career has evolved significantly through continuous professional development, encompassing not only advanced levels of education but also extensive exposure to construction project management. This experience has equipped me with advanced expertise in controlling, monitoring, and managing engineering activities. As a result, I am confident in my ability to assess, acquire, and apply the competencies and resources necessary for engineering activities.

To further emphasize my commitment to lifelong learning and professional growth, I maintain an active membership with Engineers Australia. I consistently participate in various events and activities to uphold my Continuous Professional Development (CPD) requirements while expanding my knowledge base.

In addition to traditional ways of learning, I enrolled in the online courses such as Udemy, where I completed a course on Reinforced Concrete Slab design using RAPT software. Currently, I am enrolled in an advanced-level residential foundation design course in accordance with Australian standards, offered by Learnpedia Australia. My commitment to self-improvement extends to YouTube, where I followed Australian engineering channels like Cornell Engineers, Spoonfeedmelectures, Vipul Patel, and others. These channels offered me practical insights into Australian design codes and regulations, contributing to my continuous learning journey. I also attended session focused on innovative engineering solutions that made it possible to bring ambitious façade and interior designs to life. I gained a better understanding of the technical details involved in realizing such visionary concepts. We discussed things like choosing advanced materials, considering structural factors, and using creative installation techniques.

My background in structural analysis and design is robust through a combination of academic study and hands-on work experience. I possess advanced skills in using software tools like ETABS, STAAD PRO, SAFE, RAM, Spacegass, Microstran, and MS-tower. My knowledge extends to various Australian standards, including AS 3600, AS 4100, AS 2870, AS 1170, AS 4600, and AS 4055 codes. Furthermore, I am well-versed in computer applications, including MS Office and e-submission platforms, essential for efficient project management and communication with relevant authorities.

To showcase my commitment to staying updated and skilled in the latest technologies and tools, I have undertaken formal training programs. These include a 16-day Microsoft Project Management course from Khulna University of Engineering & Technology, a 30-day program covering Tekla and Civil 3D at Decode BD Institute, and a 28-day AutoCAD training at the Institution of Engineers, Bangladesh.

To further advanced my engineering knowledge, I seek guidance and assistance from a senior engineer in a situation that significantly contributed to the growth of my technical engineering knowledge. The particular scenario involved a site where I had to design an eccentric footing due to the property's constraints, as it was situated very close to the neighboring property. Prior to this project, I had limited experience with eccentric footings in confined spaces.

Recognizing the complexity of the situation and the need for expertise, I consulted with my senior engineer for advice. He recommended an eccentric footing design as a solution to prevent any potential collapse and to ensure that the neighboring property's foundation remained undisturbed.

My senior engineer not only provided guidance but also introduced me to the relevant design codes, including the ACI (American Concrete Institute) and AS3600 (Australian Standard for Concrete Structures). These codes were instrumental in guiding me through the eccentric footing design process.

With the support and mentorship of my senior engineer, I successfully completed the eccentric footing design. Furthermore, he reviewed and verified the design to ensure its accuracy and compliance with the codes. This

experience not only enriched my technical engineering knowledge but also underscored the importance of seeking guidance and applying appropriate competencies and resources when faced with complex engineering challenges

Develop Safe and Sustainable Solution

My current employer, Metric Engineering, is an Engineering Consultant company. As a structural engineer, ensuring safety standards and WHS (Work Health and Safety) compliance is a crucial aspect of my responsibilities during the design and construction phases of a project. My commitment to designing structures with proper safety standards in mind and promoting a safe construction environment demonstrates a strong focus on the well-being of workers and the public.

During the design phase, I was responsible to incorporate safety measures and structural integrity into my designs by including factors such as load capacity, material strength, seismic considerations, fire resistance, and other safety-related aspects to ensure that the final structure meets appropriate safety standards. For example, I encountered a problem during the design of a pile foundation for a new building. Initially, I planned to use conventional concrete piles, a common and cost-effective choice. However, after conducting soil tests, it became clear that the soil conditions at the construction site were unsuitable for this type of foundation. The soil was highly expansive, prone to settling, and located near an environmentally sensitive area, raising concerns about soil erosion and potential contamination. To address these challenges, I proposed an innovative solution. Instead of relying solely on traditional concrete piles, I suggested a hybrid foundation approach. This involved using a combination of concrete piles and advanced soil stabilization methods. By incorporating techniques like gravel compaction, geo-fabric membranes, and specialized grout injections, I aimed to improve the soil's ability to support the structure and reduce settlement risks. Economically, despite a slightly higher initial cost, it promised substantial long-term savings by preventing expensive repairs and potential legal issues related to foundation settlement problems. Additionally, reducing concrete usage would result in fewer construction-related emissions, contributing to a cleaner and healthier urban environment

During site visits, my role as a structural engineer extended to supervising and providing guidance to the site engineer and construction team. By encouraging them to follow the WHS management plan and adhere to safety protocols, I actively contributed to the creation of a safe working environment on the construction site.

My engagement with the site engineer and construction team can involve regular safety briefings, hazard identification, and risk assessments to proactively address potential safety issues. I emphasized the importance of safety and providing necessary resources and training can further enhance their commitment to maintaining a safe workplace.

In addition to advocating for WHS compliance, I may also collaborate with other stakeholders, such as project managers and contractors, to ensure that safety measures are effectively implemented throughout the construction process.

By prioritizing safety in my design work and encouraging a strong safety culture during site visits, I contributed to the overall success of the project by minimizing accidents, injuries, and potential structural failures. My commitment to safety not only protects the workers on-site but also upholds the reputation of our organization as one that values the well-being of all involved in the construction process.

IDENTIFY, ASSESS AND MANAGE RISKS

=====TO BE CONTINUED=====

=====TO BE CONTINUED=====

Global Immigration Help