

AN EXCLUSIVE INTERVIEW WITH SANDEEP PINGALE ON CAREER OPPORTUNITIES FOR CIVIL AND STRUCTURAL ENGINEERS

Interviewee: Sandeep Pingale, Founder & Managing Director, Econstruct Design & Build Pvt Ltd

Interviewer: Rajesh Bojan

Category: Employability Skills

➤ **What is your opinion about the scope of Civil Engineering in India and abroad?**

Civil Engineering has high scope in India as well as abroad. The main reason being, the everchanging world and increase in per-capital income civil engineers will be needed to manage small to high-scale projects. To build or repair bridges, roads, dams as well as airports and building structures of all types across every country. On any given day when you drive to or from work you will always see some construction happening. All this is achieved by Civil Engineers.

Civil engineering is a professional discipline of engineering dealing with designing, constructing, and maintaining the natural and physically built environment. Civil engineers are responsible for the building of bridges, roads, skyscrapers, canals, dams, and other such structures. Civil engineering not only creates the environment we live in but also supports and improves the standard of our living from sustainable energy to clean drinking water.

Civil engineering is one of the oldest branches of engineering and is further divided into numerous other sub-disciplines:

- Geotechnical engineering
- Environmental engineering
- Transportation Engineering
- Urban Engineering
- Materials Engineering
- Coastal Engineering
- Construction Engineering
- Structural Engineering
- Hydraulics & water resources engineering
- Geo-informatics
- Engineering Geosciences

➤ **How does *E-construct* differ from other companies in the market?**

We primarily concentrate our efforts into three services:

- 1) Advance trainings for Civil Engineers
- 2) Engineering Consulting and
- 3) Construction and Civil Contracting

At Econstruct, we strive to be most preferred strategic partners with our customers, empower our youth to achieve greater benchmarks and create an environment such that our employees are proud to be with us. We deliver quality in every department, which leads to progress of the individual, the organisation and the country as a whole.

➤ **As a Founder & Managing Director what is your biggest challenge?**

We have to ensure the business is process-driven and people-friendly and all the while maintain competent and motivated team. We always ensure that our team needs come first and thereby be equipped with the required knowledge, skills and attitude to deliver the best that translates to customers delight.

➤ **What employability skills do you think is vital for sustaining in this competitive world?**

There are 4 mantras for success in this competitive world:

- 1) Up to date global knowledge
- 2) Unmatched skillsets
- 3) The attitude to deliver, deliver and deliver
- 4) Habits of champions

➤ **Sandeep, if I ask you to choose a number in a 10 point scale considering 10 being the highest, how much would you rate for the technical skills and practical exposure of students in general?**

I would rate it a 3. The reason is that the institution lack knowledge and drive to equip the students with the relevant job specific skill sets and they also lack knowledge of true potential of civil engineering field. Due to this our today's civil engineering students lack passion for this field.

We have visited many colleges from across India for internship and recruitment drives. We have observed one thing in common, that students do not have clarity about the job positions available for them after they pass out and the corresponding skill sets that they should strive to acquire. They have

lot of confusion about how to identify their area of interest and how to prepare to achieve a core technical placement in that chosen area by acquiring right kind of skill sets and mindset.

I would suggest students to have internships in every single semester break right from 1st year to 4th year. This will help them to know different departments under civil engineering industry and identify the corresponding skill sets expected by the industry and their own lacuna in them. Students need to identify their passions and strive to achieve the same. Passion for civil engineering will drive them to become better engineers.

We have also observed that students are not aware of true potential of civil engineering, which is the mother branch of all. It is very sad that most of the students feel that civil engineering has very less scope and less salary package as compared to software engineers or any other branch of engineering. A civil engineer's salary package depends on his ability to deliver and that comes with relevant experience. Civil engineers can also get very good career with high salary packages in India or abroad once they gain few years of quality experience.

I would like to compare civil engineering career with that of doctors. Doctors are responsible for saving life and civil engineers are also responsible for saving life. Doctors take long time to become experts and they have to practice under experienced doctors for years together. But once they become expert in their skills, then, sky is the limit. Same thing applies for civil and structural engineers.

Civil engineering students lack potential and spark in their own line and they end up comparing themselves with starting high paying jobs that of software engineers and in turn demotivate themselves.

I will give one example to explain this:

If you want to buy a mobile the average cost is around 30k

If you want to buy a laptop then the average price is around 60k

If you want to buy a car then the average price is around 7 lacs

But if you want to buy a house then the average price is around 50 lacs

Buying a house is everybody's dream and it happens once in lifetime and one has to go to bank apply for a loan and then pay civil engineers. Civil engineers have the opportunities to design and bring to life peoples' dreams.

A common man's lifetime desire of building a house is an expensive target to achieve and when civil engineer takes up this opportunity he is dealing with a project value in lacs. There is great responsibil-

ity on the shoulders of civil engineers and they significantly contribute in the overall development of our country.

➤ **What gaps do you find in the current curriculum?**

The current curriculum makes students study too many subjects with a high level of pressure to score marks and is completely theory-based. Our education system focuses on marks and competition rather than skills, knowledge, attitude and this leads to huge gap between the industry requirements and the academics. Current curriculum is theoretical which is of no use to the industry. We, as an employer struggle a lot to have skilled staff who can deliver the project from start to end. Students must be able to complete atleast 30 x 40, G+1 Villa after completing 4 years of engineering. But, in current scenario, most of the students cannot complete one full villa design from start to end with Architectural planning with vastu, electrical, plumbing, structural analysis, 3D view etc. All the unnecessary assignment work should be removed from the syllabus and more practical projects must be added right from 1st year. This can be achieved by having tie-ups with the construction & consultancy companies. Syllabus should be set by teams, which include industry-heads and successful entrepreneurs in the field.

Students should enjoy their learning process instead of feeling stressed and burdened and they should be guided in such a manner that they become inquisitive. I personally believe that learning should be fun and enjoyable experience. We expect students to be employable from day 1 with minimal training from company side after they join as a fresher. Currently, a student is spending 4 years in college and then additional 2 years for post graduation. Despite spending 4 to 6 years in classroom, we find them unemployable.

Companies have to invest lot of time, energy and money on training freshers. This training should be done hand-in-hand during their academics as a joint responsibility of academics and industry. A college must have 50% faculties from college and 50% corporate trainers from the industry.

We must have compulsory internships in the industry right from 1st year to 4th year during each semester break every students should get a glimpse of each department before passing out and they should get an opportunity to select their area of their interest.

By the time a student reaches his/her final year they would have identified their passion correctly. This will give them the required clarity about their career and help them become engineers in the true sense. I would like to share a model curriculum:

First Year: In the first year, students must concentrate on their communication skills and business writing skills, which are expected by the industry. It will help them if they can work on business writing and speaking before learning any technical subjects. Following that the students can learn about technical contracts management, documentation and presentation work during and assist professionals in the working environments.

Second Year: In the second year, students can learn AutoCAD along with Vastu knowledge. I have heard civil engineering students saying that vastu is for architectural students only. But knowing vastu in-depth will help them design better plans in AutoCAD. Knowing just software will give click here, click there knowledge but knowing vastu will make them design living spaces. They can even start taking projects on freelancing by learning drafting software at expert level.

Thrid & Final Year: The next two years of their graduation can be spent on acquiring internship and developing their skills by involving in real-time projects.

➤ **What technologies including knowledge of software do you think the students should start learning to grab opportunities?**

- 1) Students should do survey to know the true potential of civil / structural engineering.
- 2) Do market study about type of job positions / designations available for civil / structural engineers and find out what are the skillsets expected by the industry in each department.
- 3) Identify your area of interest / identify your passion sub-field of civil engineering where you would like to make a career in.
- 4) Start acquiring skills in your area of interest through on-job internships during semester breaks and especially make sure that you do a live final year project. Do not get engaged in dummy final year project or copied project. Try to work during final semester to gain working experience on a live project under any consultant or builder.

Below table shows different departments v/s skillsets that a Civil / Structural Engineer should acquire from the entry level to 5 years of work experience to become expert in any one of the following department During Entry level, they must know minimum 1 or 2 software's at Expert level and eventually they should try to grab knowledge in other areas over the period of time to reach greater heights in their career in that particular field. At Econstruct Design & Build (P) Ltd. we provide the following:

| S.NO. | JOB POSITION / DESIGNATION | SKILLSETS |
|-------|--|---|
| 1. | Entry level drafting job as a Junior Draftsman for Diploma (Civil) B.E (Civil) Job Position: Jr. Draftsman (Entry level to 2 years exp) Sr. Draftman (3 to 5 years exp) | AutoCAD, REVIT architecture REVIT structures REVIT MEP, ArchiCAD |
| 2. | Building Information Modelling department Job Position : BIM Modeler (2 to 8 years' experience) Arcitects + B.E (Civil) | Nevisworks, Solibri, ArchiCAD, AutoCAD at expert level with Vastu knowledge REVIT architecture, REVIT structures REVIT MEP Google Sketchup, Tekla, Lumion |
| 3. | Structural Design Engineering department Job Position : Structural Design Engineer B.E(Civil) and or M.Tech (Structures & CAD structures) | StaadPRO (General software analysis and designing) ETABS Basics (Super structure designing software) ETABS Advance for High rise / sky scrappers SAFE (sub structure designing- Foundation & Raft designing) CSI Bridge – Bridge designing software PROKON – Individual element analysis & Design software RCDC – Designing and detailing software. |
| 4. | SITE / PROJECT MANAGEMENT DEPT Job Position : Entry level – Site Engineer (0 to 2 years) Project Manager – 5 to 10 years' experience | MSP OR PRIMEAVERA MS Excel, PPT, Word Good management skills as site / project engineers have to do coordination between multiple vendors and teams like Labours / materials / engineers / vendors / accounts. He must possess good interpersonal skills along with communication skills and knowledge of local language is must. |
| 5. | Tendering / estimation and Contracts management jobs | Must have good communication skills. Business writing skills Command over English language is must We train for 6 months on how to upload tenders etc in this department. It takes minimum 6 months to 1 year for a fresher to become expert in this area. |

➤ **How far E-construct as a company contributes for the development of students, its employees and nation?**

Following are our contributions for students / recent pass outs / freshers and working professionals.

Free Online Training: We have a youtube channel for civil engineers called *Econstruct Design and Build Pvt Ltd* which will give them clarity on anything and everything about civil / structural engineers. Students will be able to ask their queries related to career in civil engineering.

Free Career Counselling & Employability Test: We also encourage students and pass outs to walk-in to our office on any Saturday from 10 am to 4 pm to take up a employability test which will test their current skill sets against the market requirements. This will facilitate them in planning their career better.

Certified On-Job Training Courses with 100 % Job Placement Assistance: We have been conducting many ON-JOB trainings for Civil / Structural engineers at our Bangalore head office. We train on live projects in an ON-JOB working environment to make sure that they have right skills. We are also giving a right platform + environment + guidance on how to reach ones technical goals and potential. We believe that if civil engineers will be skilled then our country will also grow in infrastructure and housing sector in many ways.

Internship: We provide internship from first year to final year at our Bangalore office. Diploma B.E, M.Tech Civil/Structural engineering students are eligible. Last year, we selected 100 + interns from across India and abroad who received live working experience even before passing out from their degree. This has given them clarity about civil engineering field and many could get a core technical placement. Few students even started their own freelancing and entrepreneur journey at a young age.

Young Entrepreneur Program: We have also contributed in making many young entrepreneurs. We plan to launch a full fledged 2 years training for making more number of young entrepreneurs in India as we believe that youths have more energy and ideas. It can be channelized in right direction with proper guidance to get maximum benefit in creating employment and developing of our nation. We need to motivate and provide guidance and right environment to students and they will shine like stars. Our youths have higher level of capabilities; they just need right kind of platform, environment and guidance.

Our Employees: We believe that employee's individual and professional growth is our responsibility. We make sure that our employees are able to achieve this while working with us. We view our organization as one family working together to achieve a common goal. We provide them right kind of environment to progress and upgrade their knowledge constantly. Our team members feel very free to express their views in a good team spirit and help each other in anyways possible.

Quality of Work in Terms of Designing and Construction: *Econstruct* is part of numerous government projects in Karnataka as well as International projects from Canada and The Gulf. We believe in delivering quality work in time. We are constantly working hard to make a process-driven team, which can achieve the highest level of quality workmanship. *Econstruct* has also designed many iconic and high-rise structures across India. We are tied up with many consultants and builders and this helps us in getting repeat designing or civil contracting works as we have successfully built trust with our clients.

➤ **I have come across your free online training program for students. What makes it special?**

This free training program was launched to give students clarity about the civil engineering field. This program also gives them a demonstration on each of the departments that are mentioned in above table. Our training schedules are always in the evening time so that students are not disturbed during their academic pursuits.

We encourage students to do a live project during their pre-final year or final year as per the academic requirement. We give insights about importance of on-job internships at companies during their engineering. We have emphasized on getting working experience even before one graduates from college.

We insist on internships and their importance during semester breaks and during final semester in B.Tech or M.tech level. This enables one remove his/her fresher's tag and makes them productive from day one. Students must strive to add live projects to their CV even before they graduate. We hope students have benefit from these free online trainings.

➤ **How do you think Civil and Structural Engineering will shape the future?**

Civil or Structural engineers are required in our everyday walk of life. They are the architects of a better tomorrow and thereby have a big responsibility of shaping the future of our country.

We are currently facing these issues in our country:

- 1) Water shortage and management issue
- 2) Environmental issues are increasing day by day
- 3) Transportations, roads, bridges and dams are to be designed and repaired
- 4) Shortage of affordable housing

All the above are civil engineers' forte. Civil engineers are solely responsible for making the budgeted housing and mass housing affordable, providing sustainable energy solutions to environmental issues and provide apt water management solutions. All the while reducing the cost and increasing impact on society.

➤ **We see a lot of girls choosing Civil and Mechanical streams breaking the gender stereotype of the past. How do you see this?**

Firstly irrespective of gender, a person who completes his/her degree in Civil Engineering is a Civil engineer. What matters is not the gender but the quality of the education delivered to them. The opportunities in this field is vast as in design, quantity estimation, planning, tendering/bidding, contracts, project monitoring & coordination, BIM modelers, Structural Engineers and others this further motivates them to choose these fields.

All civil engineers are not site engineers and many girls opt for site engineer jobs. Site engineer job requires good management skills and generally girls are good in multitasking and multi-vendor management skills. Nowadays, girls have broken all the stereotypes and they are doing well in all fields. Then why not civil or mechanical engineering?

➤ **What is your advice for the budding Engineers?**

- Enjoy your college days do not take it so seriously that you loose track of real learning.
- Study hard and find yourself a mentor from your day one of college. Preferably someone who is a practicing professional.
- Attend planned internships during your semester breaks.
- There is no such thing as failure. There is only success and learning, so just go for it!

ABOUT THE GUEST INTERVIEWEE**SANDEEP PINGALE**

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A Proactive, Dynamic and Results-oriented professional with over 15+ years of experience in Engineering Consultancy, Construction and Skill Training leveraging strong technical expertise in Structural Analysis & Design and experience in leading projects of technical prowess within India and abroad. An accomplished entrepreneur having established Econstruct from scratch & delivering over 80 projects and setting up branch offices in 3 locations within India in the last 7 years highly skilled and innovative in the areas of structural design with expertise in ETABS, SAFE, SAP2000, BIM technologies.

A believer in empowering the younger generation with skill development on structural design, imparting the highest level of training and development. A Skilled strategist who transforms strategic plans into workable solutions through appropriate use of resources, with financial, business acumen and building better relationships with stakeholders.