Pluming Lab at College of Engineering Pune

Background:

Until year 2000 plumbing was not taught in engineering or architectural colleges. As a result, plumbing was left in the hands of untrained, non-qualified people. It resulted in excessive pressure, inadequate pressure, non-performance of plumbing fixtures and leakages, to name a few.

The building structures became more complex, basements extend beyond the building line, multiple basements became common, high-rise buildings were no more wonders of India, modern technologies such as post tension slabs made the construction much faster. Good plumbing and nice bathroom groups was no longer a luxury in the new lifestyle. There was more awareness in water and energy conservation. Slowly, plumbing received the attention it deserved. All this called for more professional approach towards designs and installations of plumbing of international level.

A good plumbing ensures good health and safety of people. It was therefore essential to demonstrate good (and bad) plumbing practices, materials and methods to the professionals, practitioner and academicians. With the beginning of formal training courses in plumbing, the plumbing lab has become a very important tool to understand the subject in a short time under one roof. Reading codes and textbooks is sometime
cumbersome, difficult and boring. The code language is generally difficult to understand. This lab serves a purpose of educating the masses on the need of good plumbing and the way to install it, in the easiest way.

The beginning:

The concept and design of such lab was conceived by Mr. Subhash Deshpande, a practicing plumbing consultant and Chairman of Pune Chapter of Indian Plumbing Association (IPA). The concept was appreciated by the IPA and initial budget was approved. Mr. Deshpande is past student of the College of Engineering Pune (CoEP) and active alumni. He therefore wished to develop the plumbing lab of his dream at his alma mater and CoEP gladly accepted the proposal.

On December 14, 2006 a historical MOU was signed between the Indian Institute of Plumbing (IIP) and CoEP to develop the plumbing lab. This MoU was endorsed by the IPA. CoEP offered 2,000 Sq feet of space with 9 m height, at the prime location in CoEP campus.

Developing the lab:

The plumbing lab at CoEP is the joint venture of CoEP, IIP and IPA.
The National Executive Committee (NEC) members of IPA contributed Rs. 100,000 each towards the labs. Many manufacturers came forward to sponsor the materials and installations. Mr. Subhash Deshpande was authorized to supervise the work and complete the same in time. He was joined by his friends Mr. Pravin Bora and M. Nitish Phansalkar in this endeavor.

CoEP is a heritage building. Thus, no change of façade was permitted. Further, no excavation was allowed to lay underground drainage pipes. The entire area had to be raised by 450 mm for the same. Development was taken up on fast track basis using pre-cast concrete walls and MS fabricated structure. Along with the civil works, tiling, fabrication, carpentry, painting, electrification started concurrently. Follow up with the manufactures to donate plumbing material was on. Imported materials took longer time to deliver.
During frequent visits to Pune, Mr. S.G. Deolalikar - pioneer in Plumbing in India, offered personal guidance and supervision. Many members of IPA’s NEC visited Pune several times to ensure that the designs were right and the work was progressing well. Dr. Anil Sahasrabudhe, Director, CoEP made many visits during development, even at late nights, to encourage the dedicated team. The staff of CoEP also offered full cooperation in timely completion.
It took 15 months, working mainly at late nights, so as not to disturb the classes. The total cost including contributions by manufactures is Rs. 1.2 crores (Rs. 12 Million). Mr. Pravin Bora and Mr. Nitish Phansalkar worked hand-in-gloves with Mr. Subhash Deshpande during execution, working day and night, surviving on ‘wada-pav’.

Some of the major sponsors for the plumbing material used in this lab are Finolex, Geberit, Hindware, Rajco copper, Viega, ACO, Supreme Industries, Astral Flowguard, Kitek, DP pumps, Grundfos pumps, Commander, Gems sanitary, Roca, Neco, Acquabath, GMGR etc.

Launching:
The lab was inaugurated on **February 14, 2008** at the hands of Mr. George Bliss III, Chairman of World Plumbing Council (WPC), in the presence of Dr. Anil Sahasrabudhe, Mr. SG Deolalikar, Subhash Deshpande and Sudhakaran Nair, present President, IPA. Many officials from WPC, IAPMO, IIP, IPA, CoEP, other local associations and press were present.

After completing the few finishing touches, the lab is handed over to CoEP at the hands of Mr. Deolalikar on **April 26, 2008**.

About the Plumbing Lab

It is the demonstrative lab, live with flowing water. It shows various types of toilets based on the utilities such as toilets for disable persons, public toilet, residential toilet, hotel toilet, plumbing in kitchen, toilet with sunken floor and toilet with sealing hung pipes.
The entire set up demonstrates good plumbing conforming to the Uniform Plumbing Code of India (UPC-I). Common mistakes at sites are also highlighted so that people can avoid them during execution. Each toilet demonstrates appropriate plumbing fixtures, a unique plumbing layout of water supply pipes, accessories and appliances and overall ambience. The lab also shows the latest plumbing materials, methods, design, and technology such as a dry wall system, corner fittings, RO system, central solar water, hydro-pneumatic systems, symphonic roof drainage etc. Various water supply pipes such as copper, stainless steel, CPVC, PPR, Multilayer (composite), PEX, GI are seen. In drainage section, pipes such as uPVC, PP, Cast Iron Hubless, HDPE can be seen. The lab also demonstrates various types of valves, traps, regulators, gauges, thermostatic mixtures, back water valve etc.

There is independent section of a pump room, where we can see submersible pump, monobloc pumps, hydro-pneumatic systems using vertical in-line pumps and variable frequency drive pumps and air vessels, with accessories such as strainers, foot valve, float, isolation valves, headers, water level controllers, vibration eliminators etc.

The 9 m tall demonstrative tower is the central attraction of the lab. It demonstrates various drainage systems using transparent pipes. A two pipe system with soil and waste pipe – commonly practiced in India is illustrated. The tower also depicts a one pipe fully vented system and demonstrates how few fixtures can damage the trap seal in absence of proper venting.

The modern techniques can avoid venting of plumbing fixtures and stacks by installing sovent fittings at each floor that allows undisturbed air core in the stack. Use of transparent pipe also allows us to see the phenomenon of hydraulic jump, turbulence in WYE fitting and effects of Tee vs WYE joints.
Plumbing Classroom:

The plumbing lab is supplemented by a dedicated plumbing class room of the capacity of 20 students which also has a library of plumbing codes, textbooks, technical papers, journals and manufacturers catalog. It was inaugurated on April 19, 2007 at the hands of Dr. Anil Sahasrabudhe and Mr. SG Deolalikar. The classroom is utilized mainly for training in plumbing.

The first Professional Development Course (PDC) was conducted by IIP between July 30, 2007 and November 3, 2007, at plumbing class room. The certificates to successful students were awarded on November 23, 2007 at the hands of Mr. CS Gupta, Gurmit Singh and Dr. Anil Sahasrabudhe.

Plumbing Lab - One of its kind in the world:

There are many labs developed by reputed manufacturers all over the world for testing and displaying their products, but a lab of such comprehensive nature developed exclusively for the academic purpose is the only one. The efforts of Mr. Subhash Deshpande in developing this lab will always be remembered in the Indian Plumbing history.

This lab is appreciated by all those who visited it, including politicians, administrator, municipal officers, building and plumbing professionals, consultants, contractors, manufacturers, academic faculty and students of engineering, architecture and interior design and lastly but not the least – even Nobel Laureates. It has become a useful tool demonstrating good plumbing practices in order to ensure public health and safety.
Every year thousands of people are visiting this lab and getting the benefits of updated knowledge on plumbing which is vital to global health. The lab is open on all working days of the college of and is free for all.

**The Uniform Plumbing Code – India**

The Uniform Plumbing Code – India (UPC-I) is the first ever plumbing code developed by the Indian Plumbing Industry itself, to achieve its mission – “Better Plumbing for Better Living”.

International Association Of Plumbing And Mechanical Officials – India (IAPMO-India) and the IPA together have published 2008 Uniform Plumbing Code – India. It is a model code of design, installation and maintenance of plumbing systems in India. It recognizes and utilizes the international concepts; taking into consideration the proven plumbing practices and customs in India. This code of practice attempts to minimize the risk by specifying technical standards of design, material, workmanship and maintenance of plumbing systems. This dynamic code is revised every 3 years.

**Plumbing Education:**

The IPA-IAPMO-I Plumbing Education to Employment Programme (PEEP) is based on UPC-I. Under PEEP a Memorandum of Understanding was signed on May 18, 2009 by IAPMO-I, IPA and CoEP to commence Plumbing Systems Design (PSD) and Plumbing Construction Management (PCM) academic programs. PSD program is offered by CoEP as an elective subject to the final year B. Tech. (Civil) students. CoEP also offers PCM program as part time course for working professionals such as consultants, contractors, engineers, supervisors, managers, architects and interior designers.

Besides these short term certificate courses, CoEP students are pursuing post graduate
studies in Plumbing. The Plumbing Lab serves as a great tool in conducting these courses.

CoEP, IIP, IPA and IAPMO India together are bridging the gap of formally trained plumbing professionals in the Indian Building Industry by way of the developing the plumbing lab and successfully running the training courses in plumbing.

About us:

College of Engineering Pune

College of Engineering Pune (CoEP), chartered in 1854 is a nationally respected leader in technical education. The institute is distinguished by its commitment to finding solutions to the great predicaments of the day through advanced technology. The institute has a rich history of 158 years and dedication to the pursuit of excellence.

CoEP offers a unique learning experience across a spectrum of academic and social experiences. With a firm footing in truth and humanity, the institute gives an understanding of both technical developments and the ethics that go with it. The curriculum is designed to enhance the academic experience through opportunities like internships, study abroad programmes and research facilities.

The hallmark of CoEP education is its strong and widespread alumni network, support of the industry and the camaraderie that the institute shares with several foreign universities. The institute is consistently ranked amongst the top 20 technical colleges in India and its alumni have contributed a lion’s share in development of national infrastructure.

Indian Plumbing Association

The Indian Plumbing Association (IPA), established in 1993, is the apex body of plumbing professionals in the country. Set up with an objective to promote advancements in plumbing and the building service industry, IPA has successfully created a forum for exchange of ideas and dissemination of information amongst its members.

IPA’s membership includes plumbing consultants, plumbing contractors, plumbing product manufacturers, traders, planners, education institutions, architects, developers and builders. IPA has 12 Chapters across the country with membership exceeding 1,800.
IPA also conducts conferences and exhibitions throughout India and publishes the monthly magazine - Indian Plumbing Today (IPT). IPA has succeeded in creating awareness about the need for safe plumbing, and is now ready to assist Indian professionals with improving their skills and expertise.

**Indian Institute of Plumbing**

In order to improve the knowledge, skills and expertise of plumbing professionals and the plumbers, the Indian Institute of Plumbing (IIP) was set up as the training arm of the Indian Plumbing Association. The IIP assists education institutions and vocational training institutes to meet the large demand for plumbing engineers and technicians. The quality of plumbing work has long been an issue in India. Plumbers are often unqualified or have graduated from being casual laborers with no formal education or training. The IIP also provides facility for training the tradesmen to code adherence and quality of workmanship. This will allow the domestic plumbing industry to grow beyond its inherent limitations due to the shortage of skilled labor.

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