THE STATE OF TEXAS
ENGINEERING PRACTICE
ACT

AND THE
PROFESSIONAL ENGINEERING
LICENSE

SOURCES OF INFORMATION

- HAND OUT - SUBCHAPTER 1- TEXAS
  ENGINEERING PRACTICE ACT
- TODAY’S NOTES - POSTED ON THE ENGR.
  482 WEBSITE
- ENGINEERING REGISTRATION WEBSITE:
  ftp://engineeringregistration.tamu.edu
- Texas Engineering practice Act and Board
  Rules www.tbpe.state.tx.us/downloads.htm

RULES AND REGULATIONS for
Professional Engineering Registration

Coverage (continued)
- Necessary engineering experience
- Examinations
- Board review of applications
- Licensing
- Profession conduct and ethics
- Compliance and enforcement
- Complaints
- Hearings and contested cases

STATE OF TEXAS
ENGINEERING PRACTICE ACT
INCLUDING
RULES CONCERNING THE PRACTICE OF
ENGINEERING

RULES AND REGULATIONS for
Professional Engineering Registration

Texas administrative code
- Title 22 examining boards
- Part 6- Texas Board of Professional Engineers
- Chapter 131 - Practice and procedure

Coverage
- Bylaws and definitions
- Application for license
- Required references

The Legal Regulation of Engineering Practice
is a
State Function
not a
Federal Government Function
Engineering Practice law

- Each state has its own law
- Each state issues its own P.E. licenses
- You must have a license in each state where you practice engineering
- Some states offer reciprocal registration to other states (e.g., Texas will accept Okla. P.E.’s if Okla. will accept Texas P.E.’s)

Texas Engineering Practice Act
s.c. 1 - Professional conduct and ethics
131.151. Engineers shall protect the public

(a) Engineers shall be entrusted to protect the health, safety, property, and welfare of the public in the practice of their profession. The public as used in this section or other rules is defined as any individual(s), client(s), business or public entities, etc.

Engineers shall protect the public

(b) Engineers shall not perform any engineering function which, when measured by generally accepted engineering standards or procedures is reasonably likely to result in the endangerment of lives, health, safety, property, or welfare of the public.

(c) Any act or conduct which constitutes incompetence or gross negligence, or a criminal violation of the law, constitutes misconduct and shall be censurable by the Board

(d) Engineers shall notify involved parties or the board of any engineering decisions or practices that might endanger the health, property, or welfare of the public. When in an engineer’s judgment any risk to the public remains unresolved, that engineer shall report any fraud, gross negligence, incompetence, misconduct, unethical or illegal conduct to the board or to proper civil or criminal authorities.

Engineers shall protect the public

(e) Engineers should strive to adequately examine the environmental impact of their actions and projects, including the prudent use and conservation of resources and energy, in order to make informed recommendations and decisions.

Section 131.152 – Engineers shall be objective and truthful

(a) Engineers shall issue statements only in an objective and truthful manner

(b) The issuance of oral or written assertions in the practice of engineering which are fraudulent, deceitful, or misleading constitutes misconduct.

(c) The engineer shall disclose a possible conflict of interest

(d) special rules re: conflict of interest

(e) The engineer shall only issue work conforming to the Board’s sealing rules.
131.153 Engineers actions shall be competent

- Engineers shall practice only in their areas of competence
- In a careful and diligent manner
- In conformance with
  - Standards
  - Laws
  - Codes
  - Rules and regulations applicable to engineering practice

Standards

- Drinking water standards
- Standards for the examination of water and wastewater
- ASTM standards
- Highway design standards

Laws

- Conduct
- Contracts
- Safety
- Environment

Codes

- Building codes
- Boilers and pressure vessels
- AISC steel design codes
- ACI concrete design codes

Rules and regulations

- Rules and regulations promulgated by federal and state agencies to implement laws and local ordinances

Engineers actions shall be competent

- (b) Engineers must be qualified by education and experience to perform adequately and completely.
- (c) Engineering opinion in court cases, depositions, and public forum shall conform to accepted scientific and engineering principles unless carefully justified. E.g. acceleration of gravity may not apply to weightlessness in space
131.154 Engineers shall maintain confidentiality of clients

- See handout of law for examples a, b, c, d.

131.155 Engineers responsibility to the profession

- (a) Engineers shall engage in professional and business activities in an honest and ethical manner. Engineers should strive to promote responsibility, commitment, and ethics both in the education and practice phases of the engineering. They should attempt to enhance society's awareness of engineers' responsibilities to the public and encourage the communication of these principles of ethical conduct among engineers.

- (b) The engineer shall:
  1. Endeavor to meet all of the professional practice requirements of federal, state, and local statutes, codes, regulations, rules, or ordinances in the performance of engineering services.
  2. (2), (3), (4) see handout.

- (c) The engineer shall not see handout issues of bribery, advertising, competitive bidding.

131.156 Action in another jurisdiction

- If you practice improperly in another state you can be disciplined in Texas.

Engineering registration in Texas

2. Industry argued for exemption from this requirement because:

- Some industries (such as the power industry) are regulated in other ways, or
- The public is protected by product liability laws.
### Engineering registration in Texas

3. SB 277 (Spring, 2003) broadened the industry exemption to
   - Include software and hardware engineers
   - Allow exempt engineers to use the term “engineer” internally within the industry
   - Use the term “engineer” if they have an accredited engineering degree and are working under the direction of a licensed professional engineer.

### New powers of the Board

- Define the practice of engineering as it affects the public
- Requires manufactured products to be designed and sealed by a licensed professional engineer

### New powers of the Board

- Render opinions on such topics as
  - Which products will require design by a licensed engineer
  - Whether the engineering activities of a private entity affect the public
  - Whether data collection and analysis intended to support an engineering analysis or to be included in engineering works constitute the practice of engineering

### Should an engineer be licensed from the health and safety standpoint, if

- A computer software engineer designs the software to control a nuclear power reactor?
- A mechanical engineer designs automobiles driven on our highways?
- An electrical engineer designs the electrical switchgear at a major water or wastewater treatment plant?

### Should an engineer be licensed from the health and safety standpoint, if

- A chemical engineer designs a chemical plant that discharges air pollutants into the atmosphere?
- A petroleum engineer designs oil separating and other processing equipment for leases located in a city like College Station/Bryan?
- An electrical engineer designs the control for a power grid that effects a large part of the country?
The engineering registration process

- Step 1: The fundamentals of engineering exam
- Step 2: Graduation from an accredited college of engineering
- Step 3: A minimum of 4 years of responsible professional practice including Masters and Ph. D. graduate education
- License application with references and an exam in your engineering field

The Jack of all trades is no more!
He or she has neither the Time nor the money To be Licensed
In all things

The Fundamentals of Engineering Exam

- My opinion thereof
- Covers basics of math science and engineering sciences
- Is nationally accepted
- Best taken while knowledge is fresh
- Extensive study materials and review sessions
- Nominal cost - Given at TAMU
- 88 to 98% passing rate of TAMU students

Acceptable engineering experience

- Masters degree counts one year
- PhD degree counts at least one extra year - perhaps more if your major professor is a licensed engineer
- The rest of the experience must be responsible professional experience under the direction of a licensed engineer
- Be careful to assure that your initial jobs qualify

Application and professional exam

- Generally initially apply in one state
- Need to provide licensed engineer references who have supervised or have reason to have observed your work
- You will chose the engineering field in which you chose to be licensed
- You must pass the exam (usually open book) in the chosen field

The big question – Should you become a licensed professional engineer

- Let us discuss
  - Some advantages to being licensed
  - Some practical considerations, and
  - Some impediments
  - And then we will suggest a line drawing evaluation you can make to assist you in making your choice
Advantages of being a licensed Professional Engineer - P.E.

1. Broadens the range of professional positions that are open to you throughout your lifetime
2. There is prestige inherent in achieving the professional engineer status and being able to use the P.E. designation behind your name

3. You have the P.E. designation for life, if:
   - You pay your annual or biannual fee
   - You gain modest continual education
   - You don’t screw up technically or ethically
4. It makes you eligible for promotion to higher level positions in academia, government, consulting organizations, the military and some industries

5. It makes you more marketable in the job market and therefore warranting a higher salary to an employer who wants to keep you
6. It gives you the ability to hire young engineers under your supervision who need to work under a P.E. for them to qualify to be a P.E.

7. The ability to professionally sign and seal your own work
8. The ability to join the State and National professional engineering societies

Some practical considerations

- Graduates are told today that they can expect to have several different employers during their careers - Your P.E. license may be essential in a new job search.
- Can you afford to limit your career to only the jobs that do not require a P.E. license
- You need to choose your initial job carefully to assure you are supervised by a licensed P.E. and will be getting responsible charge of work experience - Braden Steel Example

- It is easier to get licensed when you are young than when you are older
- Licensing laws are getting tougher and are expected to broadened in scope
- Try to get “grand-fathered” before the masters degree becomes the minimum education for the P.E.
- Industries can pay lower salaries to employees who are less employable to others - aerospace example
Impediments to the P.E. license

- Too lazy to study to take the Principles of engineering exam
- Planning to take a job that will not yield needed experience
- Cost - minimal
- Study and preparation to take the engineering exam in your field
- Continuing education requirements

Should you become a licensed professional engineer?

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<th>Feature</th>
<th>Positive paradigm</th>
<th>Test case</th>
<th>Negative paradigm</th>
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<td>Use concepts provided to decide for yourself</td>
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Are there higher level accreditations? - yes

- Look at Lawyer specialty certifications
- Look at medical doctor specialty certifications
- Specialty certification is here now in some engineering fields and will be forthcoming in others
- Current examples
  - Diplomat of environmental engineering certification
  - Structural engineering certification

Are there higher level accreditations? - yes

- Environmental Engineering as an example
- The American Academy of Environmental Engineering was established by 11 engineering societies to establish a higher level certification body in this multidisciplinary field
- A P.E. with 4 additional years of experience in this field and after passing an exam in one or more of its specialty areas is awarded the title of Diplomat of Environmental Engineering and may use the designation DEE after his or her name and P.E.