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The Foundation of Our Industry by Charlie Hoover

In the 29 years I have worked in the truss industry, there have been profound changes. Slide rules gave way to electronic calculators, and the mainframe computer gave way to the PC.

Today, software is a powerful tool used to analyze the member stresses in a truss and to determine minimum member properties and the connections required for an efficient product. Operation of the computer programs is planned, specified, coded, tested, and used by teams of professionals. The software reflects the scope of knowledge learned over the last half century in the light frame truss industry.

Yet, with all that change, one area remains the same: an individual professional engineer takes responsibility for the structural performance of every truss design.

An engineered truss is unique in the construction industry. Every truss is designed for a specific position, location and loading in a structure. It is the most efficient and cost effective component and the members can be optimized for maximum performance.

Architects, structural engineers, residential building designers and contractors depend on trusses to meet the requirements and specifications noted in their plans. Truss performance is important to the building designer because he expects the component to carry the loads as specified: a critical expectation. The public lives, works and plays under trusses every day. That's why trusses must have high performance standards. To assure that performance, the industry relies on the expertise of its professional engineers. This has been the foundation of our industry.

An engineer's seal on a truss design signifies that he has designed and takes responsibility for the performance of the truss as a structural component. It is a pledge to the construction community and the public at large that the design is in compliance with the engineering laws and rules of the state, and the prevailing and appropriate building codes. It states that proper engineering judgment and skill has been used to safeguard the public by properly matching loads to expected performance.

State laws and professional board rules establish the responsibility of the professional engineer, the architect, the contractor and others involved in the construction industry. Each depends upon and places trust in the individual sealing their work. The scope of their experience has brought each to the level of professional, and their seal is the indication that one can rely on this experience for the work performed and that the professional is responsible for performance.

For an individual to have attained the title of Professional Engineer, he must have achieved a Bachelor of Science degree in a discipline of engineering. He must pass an eight hour fundamentals of engineering exam which tests what he learned in college. He must work a minimum of four years under the supervision of a professional engineer. Finally, he must pass an

eight hour examination in the area of engineering discipline in which he expects to practice. In addition, he is guided by an engineering code of ethics (see below). To attain this goal is a major accomplishment in the development of an engineer's career. These are important responsibilities and no Professional Engineer can take them lightly.

To ensure PE's do not stray from the rules and laws that govern their practice, state boards have an enforcement mechanism. This enforcement body is charged with investigating reports of questionable practice. These reports come from the public at large, which means anybody can question the work product of the engineer to the board. The enforcement group will investigate to determine if there is evidence of improper practice by the engineer. If it is determined through this process that an engineer deviated from the rules and laws, he may be disciplined. Discipline varies with the magnitude of the offense and ranges from a written reprimand, or a fine, to revocation of the license. The PE is legally, as well as morally, bound to perform engineering services only within his knowledge area and in compliance with the laws of the state and rules of the state board.

In developing the engineering procedures for trusses, professional engineers rely on standards such as ANSI/TPI -1-1995, AF&PA National Design Specification for Wood Construction, the AISI Cold Formed Steel Manual, ASCE 7- 98 and numerous other professional standards.

Even with all this published data, there are still knowledge gaps in the published standards. In those cases, engineers perform engineering. They study the gap and perform theoretical research, research testing, and calibration testing. They make engineering judgment decisions to validate the assumptions that will fill these gaps in the engineering standards. These unpublished methods improve the quality of the design, the capability of the software, the performance of the product and contribute to life-safety by taking the unknown and turning it into acceptable engineering practice. Many of these new practices make their way into the next round of consensus development for new and revised standards.

All of us in the industry must strive continually to ensure our tools are as accurate as our current knowledge allows. As professional engineers, we understand and accept these responsibilities as well as the need to constantly lead the industry on a path of sound engineering.

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Summary Code of Ethics for Engineers

Excerpted from the National Society of Professional Engineers (NSPE)

Preamble

Engineering is an important and learned profession. As members of this profession, engineers are expected to exhibit the highest standards of honesty and integrity. Engineering has a direct and vital impact on the quality of life for all people. Accordingly, the services provided by engineers require honesty, impartiality, fairness and equity, and must be dedicated to the protection of the public health, safety, and welfare. Engineers must perform under a standard of professional behavior that requires adherence to the highest principles of ethical conduct.

I. Fundamental Canons
Engineers, in the fulfillment of their professional duties, shall:

1. Hold paramount the safety, health and welfare of the public.
2. Perform services only in areas of their competence.
3. Issue public statements only in an objective and truthful manner.
4. Act for each employer or client as faithful agents or trustees.
5. Avoid deceptive acts.
6. Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession.

II. Rules of Practice

1. Engineers shall hold paramount the safety, health, and welfare of the public.
2. Engineers shall perform services only in the areas of their competence.
3. Engineers shall issue public statements only in an objective and truthful manner.
4. Engineers shall act for each employer or client as faithful agents or trustees.
5. Engineers shall avoid deceptive acts.

III. Professional Obligations

1. Engineers shall be guided in all their relations by the highest standards of honesty and integrity.
2. Engineers shall at all times strive to serve the public interest.
3. Engineers shall avoid all conduct or practice that deceives the public.
4. Engineers shall not disclose, without consent, confidential information concerning the business affairs or technical processes of any present or former client or employer, or public body on which they serve.
5. Engineers shall not be influenced in their professional duties by conflicting interests.
6. Engineers shall not attempt to obtain employment or advancement or professional engagements by untruthfully criticizing other engineers, or by other improper or questionable methods.
7. Engineers shall not attempt to injure, maliciously or falsely, directly or indirectly, the professional reputation, prospects, practice, or employment of other engineers. Engineers who believe others are guilty of unethical or illegal practice shall present such information to the proper authority for action.

8. Engineers shall accept personal responsibility for their professional activities, provided, however, that Engineers may seek indemnification for services arising out of their practice for other than gross negligence, where the Engineer's interests cannot otherwise be protected.
9. Engineers shall give credit for engineering work to those to whom credit is due, and will recognize the proprietary interests of others.

SBC HOME PAGE

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