

THE MODEL LAW AND SURVEYING
EDUCATION:
A LOOK AT THE PROFESSIONAL COMPONENT

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INTRODUCTION

- Registration laws
 - Police power – often outgrowth of abuse
 - State regulation of profession/trade
 - Protect public health, wealth, safety
- Goal
 - Ensure individuals have minimum competency
 - Individuals subscribe to minimum standards
 - Police profession/trade

NCEES

- National Council of Examiners for Engineering and Surveying
- Goal is to help state licensing boards perform their mandate
 - Develop, administer, grade, evaluate exams
 - Preserve integrity of the exam process
 - Help facilitate licensing activities amongst member boards
 - Create model law and model rules for possible adoption in all states/territories

HISTORY OF NCEES

1907	Wyoming first registration act
1920	Council of State Boards of Engineering Examiners (CSBEE) created
1931	Added National to name (NCSBEE)
1932	Model law approved
1950	All states have registration laws
1965/66	Fundamentals of Engineering exam/Principles and Practice Engineering exam begin

HISTORY OF NCEES

1967	Renamed to National Council of Engineering Examiners
1973/74	Fundamentals of Land Surveying/ Principles and Practice of Land Surveying exam begins
1989	Changes name to National Council of Examiners for Engineering and Surveying
1999	Fundamentals of Surveying exam becomes academic based

DEFINITION OF SURVEYING

The term "Practice of Surveying," within the intent of this Act, shall mean providing, or offering to provide, professional services using such sciences as mathematics, geodesy, and photogrammetry, and involving both

- (1) the making of geometric measurements and gathering related information pertaining to the physical or legal features of the earth, improvements on the earth, the space above, on, or below the earth and
- (2) providing, utilizing, or developing the same into survey products such as graphics, data, maps, plans, reports, descriptions, or projects.

Professional services include acts of consultation, investigation, testimony evaluation, expert technical testimony, planning, mapping, assembling, and interpreting gathered measurements and information related to any one or more of the following:

- a. Determining by measurement the configuration or contour of the earth's surface or the position of fixed objects thereon.
- b. Determining by performing geodetic surveys the size and shape of the earth or the position of any point on the earth.
- c. Locating, relocating, establishing, reestablishing, or retracing property lines or boundaries of any tract of land, road, right of way, or easement.
- d. Making any survey for the division, subdivision, or consolidation of any tract(s) of land.
- e. Locating or laying out alignments, positions, or elevations for the construction of fixed works.
- f. Determining, by the use of principles of surveying, the position for any survey monument (boundary or non-boundary) or reference point; establishing or replacing any such monument or reference point.
- g. Creating, preparing, or modifying electronic or computerized or other data, relative to the performance of the activities in the above described items a. through f.

SURVEYOR CRITERIA

- Surveyor Intern
 - College senior or graduate from EAC or ASAC program of 4 years or more
 - Graduate of a program related to surveying of 4 years or more with specified record of 2 years of progressive experience in surveying
 - Graduate of 4-year program acceptable to board with specific record of 4 years of progressive experience
- Professional Surveyor
 - Survey Intern with additional 4 years of combined office and field experience
 - Minimum of 3 years progressive experience on survey projects under supervision of surveyor

GRANDFATHERING OF PHOTOGRAMMETRISTS

- Any person using photogrammetric technologies with at least 8 years of experience, 2 or more years in responsible charge of projects meeting ASPRS standards or NMAS
- Period lasts 2 years

MODEL RULES

- Model Law Surveyor
 - Graduate of EAC or ASAC accredited program
 - Passed 8 hours FS and 6 hours PS exam using NCEES cut score
 - Has completed 4 years of acceptable experience after confirmation of a bachelor of science degree
- Jurisdiction may require Model Law Surveyor to pass state-specific exam

Activities that must be accomplished under the responsible charge of a professional surveyor

(unless specifically exempted) include, but are not limited to, the following:

1. The creation of maps and georeferenced databases representing authoritative locations for boundaries, the location of fixed works, or topography. This includes maps and georeferenced databases prepared by any person, firm, or government agency where that data is provided to the public as a survey product.
2. Original data acquisition, or the resolution of conflicts between multiple data sources, when used for the authoritative location of features within the following data themes: geodetic control, orthoimagery, elevation and hydrographic, fixed works, private and public boundaries, and cadastral information.
3. Certification of positional accuracy of maps or measured survey data.
4. Adjustment or authoritative interpretation of raw survey data.

5. Geographic Information System (GIS) -based parcel or cadastral mapping used for authoritative boundary definition purposes wherein land title or development rights for individual parcels are, or may be, affected.
6. Authoritative interpretation of maps, deeds, or other land title documents to resolve conflicting data elements.
7. Acquisition of field data required to authoritatively position fixed works or cadastral data relative to geodetic control.
8. Analysis, adjustment or transformation of cadastral data of the of the parcel layer(s) with respect to the geodetic control layer within a GIS resulting in the affirmation of positional accuracy.

Activities Excluded from Surveying Practice

A distinction must be made in the use of electronic systems between making or documenting original measurements in the creation of survey products, versus the copying, interpretation, or representation of those measurements in such systems. Further, a distinction must be made according to the intent, use, or purpose of measurement products in electronic systems to determine a definitive location versus the use of those products as a locational reference for planning, infrastructure management, and general information. The following items are not to be included as activities within the definition of surveying:

1. The creation of general maps:
 - a. Prepared by private firms or government agencies for use as guides to motorists, boaters, aviators or pedestrians;
 - b. Prepared for publication in a gazetteer or atlas as an educational tool or reference publication;
 - c. Prepared for or by education institutions for use in the curriculum of any course of study;
 - d. Produced by any electronic or print media firm as an illustrative guide to the geographic location of any event;
 - e. Prepared by laypersons for conversational or illustrative purposes. This includes advertising material and users guides.
2. The transcription of previously georeferenced data into a GIS or LIS by manual or electronic means, and the maintenance thereof, provided the data are clearly not intended to indicate the authoritative location of property boundaries, the precise definition of the shape or contour of the earth, and/or the precise location of fixed works of humans.
3. The transcription of public record data, without modification except for graphical purposes, into a GIS- or LIS-based cadastre (tax maps and associated records) by manual or electronic means, and the maintenance of that cadastre, provided the data are clearly not intended to authoritatively represent property boundaries. This includes tax maps and zoning maps.
4. The preparation of any document by any federal government agency that does not define real property boundaries. This includes civilian and military versions of quadrangle topographic maps, military maps, satellite imagery, and other such documents.
5. The incorporation or use of documents or databases prepared by any federal agency into a GIS/LIS, including but not limited to, federal census and demographic data, quadrangle topographic maps, and military maps.

6. Inventory maps and databases created by any organization, in either hard-copy or electronic form, of physical features, facilities, or infrastructure that are wholly contained within properties to which they have rights or for which they have management responsibility. The distribution of these maps and/or databases outside the organization must contain appropriate metadata describing, at a minimum, the accuracy, method of compilation, data source(s) and date(s), and disclaimers of use clearly indicating that the data are not intended to be used as a survey product.
7. Maps and databases depicting the distribution of natural resources or phenomena prepared by foresters, geologists, soil scientists, geophysicists, biologists, archeologists, historians, or other persons qualified to document such data.
8. Maps and georeferenced databases depicting physical features and events prepared by any government agency where the access to that data is restricted by statute. This includes georeferenced data generated by law enforcement agencies involving crime statistics and criminal activities.

CONCLUSION

1. NCEES Model Law/Model Rules, if adopted, define the scope of the profession within that jurisdiction
2. Educational programs must address the scope of definition
3. Educators must realize that most of our students are getting degrees to become licensed
4. All faculty within surveying program should become licensed – set example for students