# Goal v. Technical Standards

by
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Many surveying State licensing boards and professional organizations have grappled with establishing standards for professional practice. While practitioners can be frequently heard to argue or discuss the complexity and scope of standards, there is little discussion concerning the form the standards should take. In particular, the parties have failed to address at the outset whether the standards should be goal or technically oriented.

Goal oriented standards attempt to establish what the outcome of performance should be. On the other hand, technical standards attempt to constrain the steps, operation, or performance in order to reach a certain goal. The difference has frequently been described as the difference between telling "what has to be done" versus "how it is to be done." Two examples of standards relating to monuments should help clarify the difference.

> Goal Standard: Artificial monuments shall be located in such a manner and be of sufficient size, composition, and material that a surveyor of ordinary prudence would be left with a definite and firm conviction that:
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> 1. the likelihood of disturbance is minimal,
> 2. their life expectancy, under normal circumstances, will exceed 25 years,
> 3. the monument is capable of being detected with electromagnetic metal detectors,
> 4. the surveyor who placed the monument can be identified with certainty by inspection of the monument in the field; and
> 5. the monument is marked in such a manner and will be sufficiently visible that the status and importance is obvious to another surveyor or landowner of reasonable intelligence.
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> Technical Standard: Artificial monuments shall consist of a minimum 5/8th inch diameter metal stake or rod no less than 30 inches long, containing a cap with the surveyor's name and license number.

As can be seen from the example, a monument that meets the technical standards will meet the goal standards. However, a monument that would meet the goal standards would not necessarily meet the technical standards (e.g. a stamped brass disk with a magnet underneath cemented in a stone boulder).

Technical standards have three advantages over goal standards. First, they tend to be more straight forward. As the example illustrates, the technical standard typically fixes a more definite standard in far fewer words. In the example, there can be little doubt or dispute what type of monument will or will not meet the technical

standard. As a result, technical standards are more easily understood and applied by the survey technician.

Second, the technical standard is easier to check and enforce. Gray areas are fewer and narrower. Referring to the previous example, the surveyor that attempts to place a magnetic, stamped, metal disk amongst the stones in a stone pile is simply not meeting the technical standard no matter how permanent or trustworthy this form of monument would appear. Perhaps a more compelling scenario to show the weakness of the example goal standard is the case where the surveyor uses a locust post surrounded by stones with a spike in the top and name carved on the one side.

Third, technical standards create some uniformity and consistency among practitioners. Differences in price among practitioners will more closely reflect their individual efficiency rather than their professional whims. All surveyors will have to operate in a similar manner, using similar techniques, and can expect to reach similar results. As a result, those that can turn angles faster with more precision, buy their rebar at a lessor cost, and get more efficiency from their employees will have less cost in their survey. On the other hand, the goal standards will continue to allow one surveyor to plant field rocks with a magnetic tag for monuments while another may use tough magnetized plastic stakes that are less costly in order to meet standards.

There are six arguments that are frequently used to show the advantages of goal standards over technical standards. First, goal standards enhance a professional image while technical standards detract from a professional image. A competent professional providing quality service should not need to be told how to perform their services. By describing only the goal, the public is protected on the one hand while the professional can use their independent "professional" judgment, on the other hand.

Second, goal standards reduce potential liability while technical standards expose the surveyor to more potential liability without necessarily improving the quality of the work. To illustrate this argument, reexamine the first example dealing with standards for artificial monuments. Now consider a likely scenario where a surveyor, who encounters bedrock, places a 2.5 foot long rebar encased in concrete in the ground. In this scenario the surveyor would by most opinions have done a credible and professional job. The

surveyor would have conformed to the goal standards. However, the surveyor would not have met the technical standards. As a result the surveyor is now exposed to possible professional and contractual liability (e.g. if they agreed in the contract to meet standards).

Third, goal standards provide the surveyor with more flexibility in their practice. As the last argument demonstrates, the surveyor practicing under goal standards has flexibility and leeway to adapt to a situation they may likely encounter. While an argument can be made that flexible standards are more likely to be abused, this argument can be muted by careful wording and forethought when writing the standards. Obviously, in the example, a surveyor is not operating totally unrestricted and would certainly not meet the goal standards using a wooden stake. A licensing board with experienced members could competently evaluate and judge whether a surveyor's conduct is reasonable given a particular situation.

Fourth, goal standards are more adaptable to new technology. This argument is emphasized by trying to apply the following technical standards to new technology:

1. Standard: All equipment designed to measure distance shall be compared no less frequently than twice annually to established baselines. Application Problem: GPS equipment.
2. Standard: All monuments shall contain a cap inscribed with the surveyor's name and license number. Application Problem: In the not-so-distant future, survey monuments will have bar or magnetic code strips containing information (date set, surveyor, client, standards, etc.). Why should surveyors use caps with the surveyor's name on it in this situation?
3. Standard: For every survey, a surveyor shall prepare a plan on archival quality inks and media. Application Problem: In the not-so-distant future, courthouses and the more sophisticated client (e.g. architecture firm) will demand digital survey data. Why should surveyors be required to draw a plat in these situations?

Fifth, goal standards are less costly to the public. Consider a second example of an goal and technical standard to illustrate this argument:

> Goal: "A surveyor will cause the public records to be examined to a depth and scope that a reasonably prudent surveyor would be left with the definite conviction that ... all information fixing the client's record boundary has been located."
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> Technical: "A surveyor will examine all records in the client's and adjoiner's chain of title back from the present deeds until the surveyor arrives at a deed from a common grantor."

Now assume a surveyor is hired by a client to survey her boundary. The surveyor has obtained both the client's deed and adjoiner's deed

from the courthouse. The surveyor has also located the 1865 subdivision map showing the original lotting scheme which matches not only the calls in the client and adjoiner's descriptions but the evidence in the field. Under the technical standards, the surveyor must nevertheless examine all the records back to 1865 to comply with the standards. Under the goal standards, the surveyor could forgo a lengthy, costly research and be confident they met the goal standards. (Admittedly, most surveyors today would forego the research -- but they would not be conforming to technical standards and could therefore be liable for breach of contract or warranty not to mention professional liability!)

Sixth and finally, technical standards do not protect the public any more than goal standards and in some cases protect the public less. An examination of the surveyor's field records for surveyors practicing in states with technical standards will reveal that most surveys do not meet the technical standards effective at the time of the survey. In fact, some recorded plans on their face do not meet standards. There are three reasons for this situation. First, technical standards tend to be too rigid and inflexible and, as a result, the practitioner has no alternative but violate the standards in a Catch-22 situation. Second, because technical standards are created to provide a step-by-step approach to a situation, they either fail to cover all situations or become so voluminous they become incomprehensible. As a result, surveyors through ignorance, disgust, or improper analysis depart from the standards. Third and finally, the standards can become so burdensome and out of step with current practice, they are ignored by practitioners. Is the public better off with standards that are not followed or not enforced?

Consider a situation where a woodland owner requests a retracement survey. The surveyor, knowing the original survey was performed with a chain and compass, performs the retracement using the same equipment and procedures as the original surveyor. Along the way, the surveyor discovers old evidence along the compass line and accurately monuments the boundary. This surveyor has fulfilled the expectations of the client without detracting from the adjoiner's title, albeit this surveyor has not met technical standards that typically require a certain number of angles and minimum relative error of closure. Some time later, a second surveyor performs the same survey. The second surveyor takes great care to turn the angles the number of repetitions required by the technical standards and meets all other technical standards. Unfortunately, the surveyor

does not survey along a compass bearing, choosing instead to take the traverse down logging roads to minimize the number of traverse stations required. In so doing, the surveyor misses valuable evidence of the original survey. As a result, the surveyor comes to a different opinion on the boundary location. The second surveyor's opinion is erroneous.

This plausible scenario presents that fact that a surveyor using less complicated equipment and following original procedures can perform a more accurate survey (not necessarily more precise) than the second surveyor who used more sophisticated equipment and met the technical standards.

These arguments are sufficient to emphasize the advantages and disadvantages between goal and technical standards. Certainly each has their place. After considering these arguments, a licensing board or professional society should carefully consider the form their standards should take.

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