1995

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QUANTIFYING LIABILITY UNDER THE ARCHITECT'S STANDARD OF CARE

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David E. Boelzner**

I. THE ARCHITECT IN AN INCREASINGLY LITIGIOUS INDUSTRY

In recent years, architects and other design professionals have become the targets of claims arising from problems encountered in construction projects. In addition to incurring the costs of defending such claims, these design professionals (or their insurers) have often found themselves absorbing the liability for many “errors and omissions” that are difficult to defend when individually excerpted from a substantial project. This treatment of claims for defective design reflects a distortion of the architect’s professional standard of care that is justified neither by the contractual liability assumed by the architect nor by the economic balance among the parties involved in a construction project.

A. The Architect’s Function

The laborers who built the great cathedrals did so under the direction of a master builder who applied his knowledge, craft and experience to serve the practical and aesthetic requirements of the building’s commissioning authority. The freemasons served as both designers and contractors, and, subject to their patron’s influence, they controlled the construction process. They “carried in their heads a stock, not so much of patterns as of ideas, that grew by experience as they went from

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one site to the next."¹ This accumulated experience and skill "seemed to others to be as much a mystery as a tradition, a secret fund of knowledge."²

During the Renaissance Era, architects like Brunelleschi and Palladio began to divide their predecessors' task into design and construction, with the architect assuming responsibility solely for the former.³ Concurrently, science took on an increased importance in design.⁴ For the modern architect spawned by the Renaissance, the "problem is no longer to design a structure from the materials, but to design the materials for a structure."⁵ Through the first half of the twentieth century, an architect supplied only the basic design features, while the contractor erected the detailed structure based upon commonly understood principles. Since the 1960s, however, owners' expectations have increased with regard to the level of detail in the plans and specifications prepared by architects. It is probably no accident that this change has occurred over the same period as a significant increase in construction litigation.

A modern architect's relationship with a project's owner is defined by the contract between them, which may include as broad or as narrow a scope of work for the architect as determined by the parties. While the architect's legal liability is affected by policies embodied in tort law, such liability originates in, and is circumscribed by, the obligations assumed through contract. An architect will be required under the law to perform his duties without negligence, but the owner cannot, through tort claims, impose duties upon the architect which the architect did not assume in his contract.⁶ Nevertheless, even within the realm of contract law, the trend has been toward

¹. J. BRONOWSKI, THE ASCENT OF MAN 110 (1973). "They also carried with them a kit of light tools. They marked out with compasses the oval shapes for the vaults and the circles for the rose windows. They defined their intersections with calipers, to line them up and fit them into repeatable patterns." Id.
². Id. at 112.
⁴. Id.
⁵. BRONOWSKI, supra note 1, at 110.
taxing the design professional with increasing responsibility for
problems encountered with projects.

The architect's usual functions occur in four phases: (1) de-
sign; (2) design development; (3) construction documents prepa-
ration; and (4) general administration. The design phase in-
cludes the initial discussion of the plan and the scope of the
relationship with the owner, research of the site and of applicable
government requirements, approximation of the project time
and cost, and preparation of schematic design studies. Design
development follows the owner's approval of the initial plan,
and involves restudying the design, preparing the drawings and
outline specifications, recommending the construction materials
and equipment, and revising the estimate of costs. The con-
struction documents phase involves developing the preliminary
drawings into working drawings that provide essential technical
information, coordinating all drawings and specifications for the
various trades, preparing the technical specifications and bidding
documents, and obtaining the necessary agency approvals.
The general administration of the project includes assisting
with the selection of contractors, checking the shop drawings,
preparing the necessary supplements to drawings or specifica-
tions, observing the work to procure construction consistent
with the contract documents, issuing change orders, checking
contractors' applications for payment, and other functions ac-
cording to the parties' agreement.

Liability can arise from any or all of these phases of perfor-
ance. This article focuses chiefly on the activities related to
design proper, rather than construction administration by archi-
tects, although the standard of performance is equally applica-
table to both.

7. Vernon L. Goodin, Architectural Malpractice Litigation, in 19 AM. JUR. TRIALS
231, 248 (1972).
8. Id. at 248-50. For a more detailed list of possible services, arranged in nine
categories but occurring in roughly the same phases of the project, see David
B. The Increasingly Litigious Environment

Claims against design professionals are on the increase. Between 1960 and 1981, the number of claims increased fourfold. A recent survey by the American Consulting Engineers Council indicated that a large majority of firms believes that the threat of lawsuits hampers innovative technology. In a thoughtful 1989 presentation to the ABA's Forum on the Construction Industry, John McGuinn suggested several reasons for this trend, which has continued throughout the 1980s to the present.

First, today's owners are different from those of the past. Projects are highly leveraged and dependent upon cash flow, which motivates owners to transfer to others—chiefly the design professional or the construction contractor—the cost of financing the "unexpected events" that are inevitable in construction. Similarly, project-financing, for which lenders have recourse only to project revenues and not to the owner's investors, also begets attempts to impose unanticipated costs on others. Government owners, under the "waste, fraud and abuse" canon, are pressed to control costs, and they consequently seek to impose more costs on the designers and contractors. Senior managers, whose backgrounds are often in law or finance rather than in construction, lack full appreciation of the process and its vagaries. At the same time, however, they insist upon greater involvement in the project with the stated aim of reducing delays and inefficiencies. Increased capital costs and the faster pace of technological change (which shortens the competitive lead time for an owner to get his or her product into the market) push owners to attempt to compress construction time.

12. Id. at 11-13.
13. Id. at 12.
14. Id. at 14-16.
Meanwhile, the construction process has become more complex.\textsuperscript{15}

Besides the changes in owners, other circumstances have contributed to the increased contentiousness of construction. As more parties seek to protect their interests, more participants have become involved in the process; thus, consultants, construction managers, lawyers, accountants, inspectors, and even lenders and their experts play a role.\textsuperscript{16} The number of subcontractors and suppliers on a project has also increased dramatically.\textsuperscript{17} This multiplicity of parties has led to a fragmentation of responsibility and defensiveness.\textsuperscript{18} Increased competition in the construction industry from abroad has eroded already thin profit margins and pushed participants to fight over every dollar.\textsuperscript{19} Finally, expanding tort liability for economic damages and third party injuries has increased the cost of construction.\textsuperscript{20}

For some of the same reasons, contractors have a financial incentive to discover errors, omissions and conflicts in the contract documents. In a tight competition to win the contract, the contractor who prunes from his bid most of the flexibility to absorb contingent costs will naturally seek to justify upward adjustments in his compensation by identifying mistakes or ambiguities in the design materials warranted to him by the owner. This process results in shifting some of the unexpected costs from the contractor back to the owner, who in turn seeks to shift it to the architect.

Despite this trend, architects have generally continued to establish their fees based on the costs of providing services and not on the economic value of those services to clients or on the level of risk assumed by the architect.\textsuperscript{21} Typically, the architect’s fee will constitute a relatively small part of the total

\textsuperscript{15} Id. at 17-19. McGuinn cites increased government regulation and oversight in environmental and safety areas as contributing to higher capital costs. Id. at 19. 
\textsuperscript{16} Id. at 19-20. 
\textsuperscript{17} Id. at 20-21. 
\textsuperscript{18} Id. at 21-23, 27-29. 
\textsuperscript{19} Id. at 23-25. 
\textsuperscript{20} Id. at 25-26. 
\textsuperscript{21} AIA HANDBOOK, supra note 3, § 1.2, at 9.
construction budget, somewhere between three and ten percent; often, the more elaborate the project, the lower the percentage.

This incongruity between the architect's mode of compensation and the architect's potential liability threatens to disrupt the economic balance among the parties involved in construction projects. Inevitably, the result will include readjustments in fees, in insurance protection, or in scope of work, in order to regain the equilibrium necessary to sustain the enterprise. One natural defensive impulse, to narrow the scope of work an architect undertakes, conflicts with an architect's desire to perform additional and more specialized services. Both tendencies are arguably driven by economic motives as architects strive to remain financially viable.

This article focuses on the legal liability standard to which the work of architects is or should be held. It suggests that the standard articulated by the courts is an entirely appropriate one in view of the architect's role and compensation, but that another standard often applies in the actual litigation of defective design cases. Perhaps because lawyers have not sufficiently addressed the issue, few courts have actually imposed on owner-plaintiffs a burden of proof commensurate with the standard of care that has been expressed in judicial opinions for years.

II. THE STANDARD OF CARE

The formulation of the standard of care applicable in most jurisdictions is generally traced to the case of Coombs v. Beede, in which the Supreme Judicial Court of Maine said:

The undertaking of an architect implies that he possesses skill and ability, including taste, sufficient to enable him to perform the required services at least ordinarily and reasonably well; and that he will exercise and apply, in the given case, this skill and ability, his judgment and taste, reasonably and without neglect. But the undertaking does not imply or warrant a satisfactory result.

22. See id. (noting both trends).
23. 36 A. 104 (Me. 1896).
24. Id. at 105.
This basic standard, requiring reasonable care, skill and diligence, is the rule in most jurisdictions.\textsuperscript{25} There appear to be only two jurisdictions, Alabama and South Carolina, in which the courts hold an architect to an implied warranty guaranteeing that his plans and specifications are sufficient to make the structure reasonably fit for its intended purpose.\textsuperscript{26} Many courts have explicitly stated that the architect does not imply or guarantee a perfect plan, warrant his plans and specifications, or guarantee a particular result.\textsuperscript{27} A variation on the general approach employs the “workman-like manner” standard more familiar in the contractor context.

\begin{itemize}
\item \textsuperscript{27} See, e.g., Gravely v. Providence Partnership, 549 F.2d 958, 959-60 (4th Cir. 1977); First National, 503 F. Supp. at 439; Seiler, 367 A.2d at 1007-08; Bay Shore Dev. Co. v. Bondfey, 78 So. 507, 510 (Fla. 1918); Audlane Lumber, 168 So. 2d at 335; Coombs, 36 A. at 105; Waggoner, 657 P.2d at 149; Nelson v. Commonwealth, 368 S.E.2d 239, 245 (Va. 1988) (architect does not guarantee infallibility); Surf Realty, 78 S.E.2d at 907; 5 AM. JUR. 2D Architects § 23 (1962); 6 C.J.S. Architects § 27 (1975) (citing applicable cases).
\end{itemize}
In *Board of Education v. Del Bianco & Associates, Inc.*,\(^2\) the Illinois Appellate Court held that an architect has a duty implied in law "to specify the use of reasonably good materials, to perform [his] work in a reasonably workmanlike manner, and in such a way as reasonably to satisfy such requirements as [he] had notice the work was required to meet."\(^2\)

None of the various articulations of the architect's standard of care is stated solely in terms of a level of skill. Without exception, reference has also been made to exercising reasonable diligence or reasonable care and applying one's skill without neglect.\(^3\) This quantitative component of the standard of care is highly significant in the context of professional practice in construction because it indicates a distinction between the skill or judgment employed on a given task and the thoroughness with which that skill or judgment is applied throughout the project. The standard of care as articulated in virtually all jurisdictions allows for something less than perfection, thus requiring only reasonable skill and reasonable diligence. This flexibility, however, is seldom recognized and applied in actual adjudication of claims involving the quantitative component of the standard. This is because the analysis of the two components is not tailored to suit the nature of each component.

**III. THE SKILL/JUDGMENT COMPONENT**

It is not only possible but analytically compelling to consider the skill component of the standard of care individually with regard to each alleged design error in a defective design claim. The inquiry is simply whether the skill manifested by the architect as to each item was within the range of acceptable practice for the profession in the relevant area. One need only examine the particular misfeasance claimed, ask whether a reasonably skilled architect would have done it this way or whether it is in fact a blunder, and assess liability accordingly.

As noted above, the skill standard does not exact perfection. With respect to the skill component of the test the architect's

\(^3\) Id. at 958.
\(^3\) See supra note 25.
standard of care may be compared to the standard of care expected of other practitioners in professions requiring judgment, technique, calculation, and evaluation. For example, one court has said that the "responsibility of an architect does not differ from that of a lawyer or physician. When he possesses the requisite skill and knowledge, and in the exercise thereof has used his best judgment, he has done all the law requires." Another court has observed that:

'[t]he physician is not an insurer of health. He undertakes only for the standard of skill possessed generally by others practicing in his field, and for the care which they would give in similar circumstances. He must have latitude for play of reasonable judgment, and this includes room for not too obvious or gross errors, according to the prevailing practice of his craft.'

Therefore, the physician is not liable for damages if he fails to cure his patient. Similarly, the lawyer is not liable for damages if he fails to win his case.

The same principle has been extended to the architect's practice. The Supreme Court of Minnesota stated in City of Mounds View v. Walijarvi:

[Doctors cannot promise that every operation will be successful; a lawyer can never be certain that a contract he drafts is without latent ambiguity; and an architect cannot be certain that a structural design will interact with natural forces as anticipated. Because of the inescapable possibility of error which inheres in these services, the law has traditionally required, not perfect results, but rather the exercise of that skill and judgment which can be reasonably expected from similarly situated professionals.]

In the same vein, the Indiana Court of Appeals has said that "'[t]he architect is not a warrantor of his plans and specifica-

33. Id.
34. 263 N.W.2d 420 (Minn. 1978).
35. Id. at 424.
tions. The result may show a mistake or defect, although he may have exercised the reasonable skill required.\textsuperscript{35}

Pursuant to this principle, the architect, like other professionals, is not held accountable for the ultimate result of his efforts as long as his skill and judgment were commensurate with the norms of his profession. Underlying such language in the cases is not so much the notion of tolerating an acceptable level of human error,\textsuperscript{37} but rather the idea that the professional must reckon with factors beyond his control that will bear upon the ultimate success of the enterprise. The Supreme Court of Minnesota in \textit{Walijarvi} stated the following:

> If every facet of structural design consisted of little more than the mechanical application of immutable physical principles, we could accept the rule of strict liability which \[plaintiff\] proposes. But even in the present state of relative technological enlightenment, the keenest engineering minds can err in their most searching assessment of the natural factors which determine whether structural components will adequately serve their intended purpose. Until the random element is eliminated in the application of architectural sciences, we think it fairer that the purchaser of the architect's services bear the risk of such unforeseeable difficulties.\textsuperscript{38}

Similarly, another court has stated that "where the act to be done is compounded of the skill of the agent and the operation of causes over which he has no control, the law does not raise from the fact of employment an implied undertaking to cure."\textsuperscript{39}

In all of these instances, whether design professionals or physicians are involved, the practitioner is excused from perfection because of uncertainties and factors outside of his control in the exercise of his craft. The inability of design professionals to establish quality control procedures comparable, for example, to those that can be developed by a manufacturer of thousands.

\textsuperscript{36} \textit{Lukowski}, 401 N.E.2d at 786 (quoting \textit{Bayne}, 163 N.W. at 1008).
\textsuperscript{37} \textit{Cf.} \textit{Hesler v. California Hosp. Co.}, 174 P. 654, 655 (Cal. 1918) ("the law takes cognizance of human weakness and \[the tendency\] . . . to err . . . ").
\textsuperscript{38} \textit{263 N.W.2d} at 424.
\textsuperscript{39} \textit{See, Note, Liability of Design Professionals—The Necessity of Fault, 58 Iowa L. REV. 1221, 1234-35 n.73 (1973) (citing Bliss v. Long, Wright 351, 352 (Ohio Sup. Ct. 1833)).
of identical products is a compelling point frequently stressed in arguments against imposing a standard of strict liability on design professionals.  

The central feature of analysis under the skill component entails examining errors one by one and measuring them against the standard of professional skill and judgment. The skill component does not address issues of oversight or inattentiveness to certain details. Instead, the inquiry focuses on an untoward result in a matter under the professional's control, and asks whether the professional displayed the requisite knowledge of the state of his art and had sufficient experience in the activity he attempted. Therefore, the analysis must necessarily examine individual, separable acts and how each measures up under the prevailing skill level.

For any sort of alleged error other than one of skill or judgment, however, the verdict under an item-by-item analysis will be preordained. Any mistake that is an omission, as opposed to a misjudgment, will by definition fall below the required level of skill, because that skill was not even applied to the particular item. Too often the analysis in architectural standard-of-care cases ignores or disregards the other prong of the standard, the quantitative or diligence component. As a result, perfection is demanded sub silentio.

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41. The design professional, like the physician, should also be permitted some errors of judgment if they are not "too obvious or gross," meaning that they are not inconsistent with reasonable skill. Frank M. Dorsey & Sons, Inc. v. Frishman, 291 F. Supp. 794, 796 (D.C. Cir. 1968). Some case decisions contain language suggesting that there is room for human error. See Hesler, 174 P. at 655; see also Allied Properties v. John A. Blume & Assoc., Eng'rs, 102 Cal. Rptr. 259, 264 (1972) (citing Gagne, 275 P.2d at 21) (“Those who hire [professionals] are not justified in expecting infallibility, but can expect only reasonable care and competence. They purchase service, not insurance.”).

42. In Gagne, for example, errors of this sort made by an engineer were examined and found wanting under the skill component. 275 P.2d at 21.
IV. THE QUANTITATIVE REASONABLENESS ELEMENT IN THE ARCHITECT'S STANDARD

A. Other Professionals

As discussed, liability in the medical arena usually turns on want of skill or proper judgment, rather than on insufficient attention to particular details or lack of diligence. In other words, medical cases often focus on malfeasance or misfeasance rather than nonfeasance. A doctor usually will not assert, much less prevail on, a defense that he simply did not focus on, overlooked, or gave insufficient attention to the particular aspect under examination. Doctors are expected to perform every act required by the skill standard. Although patients may die notwithstanding the best efforts of medical science, the physician must bring the full force of that science to bear or be found liable for failure to do so.\(^43\)

There are several reasons why this approach is probably the correct approach in medicine. One such reason has to do with the degree of control exerted over a patient by a doctor. A doctor's services are provided in an essentially linear manner with regard to an individual patient. The practitioner makes a series of evaluations, judgments and decisions regarding each case. Although there are some random elements that affect results, and other practitioners are involved, the treating physician is the captain of the ship who exercises as much control as can be exercised over the patient's case. While the field of medicine itself is complex and individual diagnoses may be difficult, the doctor generally will not be precluded by economic or other considerations from taking all the steps that reasonable skill and experience dictate. If he does not do so, he will be held accountable for any consequences.

The stakes involved in medicine, including the potential for irretrievable loss, also dictate such an approach. The injury

\(^{43}\) See, e.g., Boyd v. Bulala, 877 F.2d 1191 (4th Cir. 1989). In Boyd, nurses tending an expectant mother in the absence of a physician failed to monitor the fetus sufficiently to interdict an asphyxiation problem. Id. at 1195. The attending physician's order not to be disturbed until informed of complications or until the baby crowned was held to have contravened "good medical practice." Id. at 1198.
that can arise from medical error is of a higher order than the monetary loss associated with business dealings. Doctors are therefore expected to exercise virtually perfect diligence.\footnote{These considerations parallel the risk benefit calculus under the admiralty standard of negligence formulated by Learned Hand in the noted case of United States v. Carroll Towing Co., 159 F.2d 169 (2d Cir. 1947). Under that standard, a defendant is negligent if the burden (B) of taking precautions is less than the loss (L) that a failure to take the precautions could reasonably be anticipated to cause, discounted (multiplied) by the probability P that the loss will occur without the precautions being taken. So: B < PL. The magnitude of potential loss in medicine tends to raise the product of P times L to a level requiring the exertion of all possible effort. \textit{Id.} at 173. \textit{See also} Brotherhood Shipping Co. v. St. Paul Fire & Marine Ins. Co., 985 F.2d 323 (7th Cir. 1993).}

Doctors are also compensated for their diligence. Except in rare cases, which usually involve cosmetic treatments, doctors typically do not work under contracts with their patients. Instead, they perform everything that the prevailing level of skill demands, on the (sometimes theoretical) assumption that they will be paid for the services performed. Indeed, the increasing invalidity of this assumption, due to managed care and other types of formal or informal health care rationing, promises to be an important element of the national health care debate.

Discussion of the standard of care for doctors thus omits any consideration of an economic balance of risk assumed by contracting parties.\footnote{But see Sullivan v. O'Connor, 296 N.E.2d 183 (Mass. 1973), a case involving plastic surgery that went awry, in which the court noted that an expectancy measure of damages would seem harsh in view of the fee paid to the doctor as compared with the potential expectancy recovery. \textit{Id.} at 188.} People do not voluntarily undertake medical treatment in the same sense or to the same degree that they obtain the services of a designer, or even those of a lawyer. In the context of ordinary medical treatment, it is not surprising to find that the consideration of who should bear the risk of error is inapplicable.

With regard to the balance between responsibility and required diligence, the practice of law appears to be more similar to that of architecture. Legal representation involves both skill and diligence, but demands less rigor in the latter than required by medicine. In addition to being liable for doing the wrong thing, lawyers are also liable for not doing what they agreed to do.\footnote{See Young v. Jones, 256 S.E.2d 58 (Ga. 1979) (failure to ascertain and name}
thing that could have been done, only what reasonably should have been done.\textsuperscript{47}

The nature of legal representation results in a bifurcated standard. The lawyer controls his client's portion of the case or transaction but must contend with sundry other influences, many of them actively working against his client's interests. The potential injury, however, is rarely as serious as the client's life; more often, liberty or monetary interests are at stake. The lawyer has a smaller share of the human control over his case than the doctor does and can do less vital damage if he fails to perform properly. There is logic in scrutinizing both the skill exercised and the diligence shown in pursuing the client's matter, and measuring both at some reasonable level short of perfection.

B. \textit{The Architect's Practice}

In any sizable project, it is possible, indeed inevitable, that the architect will err without any volitional dereliction of duty.\textsuperscript{48} Modern construction is a terribly complicated enterprise. The division of function that began with Brunelleschi and Palladio has multiplied almost exponentially, so that a major project may now involve one or more prime contractors, and hundreds of subcontractors, suppliers, planners, construction managers, miscellaneous consultants, and government inspectors. In fact, because so many people are involved in a major project, the architect's fee as a proportion of the total project cost is relatively small. His overall design is not necessarily dependent solely or even chiefly on his best judgment. He not only answers to the owner but also must contend with and adapt to the schedules, capabilities, unexpected failures, changes, advice and requirements of scores of other people, entities and materials.

\footnotesize{proper parties until statute of limitation had run); Cotton v. Travaline, 432 A.2d 122 (N.J. 1981) (failure to prosecute claim); George v. Caton, 600 P.2d 822, \textit{cert. denied} 598 P.2d 215 (N.M. 1979) (ignorance of rules or statutes).

47. The lawyer "is not bound to exercise extraordinary diligence, but only a reasonable degree of care and skill, having reference to the character of business he undertakes to do." \textit{7 AM. JUR. 2D Attorneys} § 199 (1980).

48. \textit{See infra} Part V.}
The number of details that must be considered in designing a major structure has also proliferated. The modern architect has a vast range of materials to choose from and a multitude of systems to arrange so that they interact properly. His design must conform to an ever-increasing variety of government and industry regulations and standards. The architect's project also does not proceed in linear chronology like the doctor's treatment or the lawyer's case. The architect generally cannot build the foundation in order to see what unexpected problems might arise before designing the next system. All systems must be planned in accordance with postulated conditions that will likely change in some unforeseeable way.

The architect, then, has less control than the doctor or lawyer has over a project, and the architect's project is at least as complex as the "projects" of his fellow professionals. Moreover, construction is fundamentally an economic undertaking. The loss to the owner resulting from architectural malpractice is almost wholly financial and remediable through economic means. Perhaps in recognition of the less vital nature of the interests affected by the architect in comparison to those entrusted to the doctor or lawyer, and the fact that monetary injury is more easily compensable, the market has established architects' fees as a proportion of total project cost, at a significantly lower level than the other professionals' fees.

The thesis of this article is that the magnitude of the disparity between the architect's fee and the total project cost dictates that the purchaser of the architect's services bear the risk that unforeseeable difficulties will arise from the inherent uncertainties of construction and that the architect's design will fall short of perfection. In the context of an intricate project, errors and omissions inevitably arise despite the architect's requisite

50. Extremely complex structures like nuclear power plants, are designed seriatim to a certain extent. Interferences arising from this process are dealt with by constant redesign.
51. The word "almost" acknowledges that an owner can suffer aesthetic disillusionment or considerable mental aggravation when construction projects go wrong. The discussion here is confined to owners' damages; the third party liability of architects for personal injuries caused by building failures is properly covered by tort principles, except that an architect should not have to answer for areas of performance assigned by contract to other parties.
level of skill and the exercise of that skill, because the architect is not compensated for a level of attention to every design detail sufficient to guarantee a perfect plan.

Theoretically the architect could be so compensated, but probably only theoretically. Building in accordance with plans and specifications involves interpretation and judgment, no matter how much detail is spelled out in the design documents, and is therefore subject to divergent conclusions drawn from the same information. In view of the financial incentives for owners and contractors to find errors, omissions, and ambiguities in the documents, as discussed above, it is unlikely that even perfect documents would eradicate all claims.

Even if this theoretical perfection were achievable, economic reality would not permit an allocation of significantly more cost toward the design function. At some point, increased effort in design development, review and coordination begins to yield diminishing results in terms of reduced errors and omissions. Left alone, the market will set the architect's fee at a level that will pay for an amount of design detail acceptable to the owner in view of the complications he knows to expect during construction. Put another way, the owner will accept a level of imperfection that results in a predictable and manageable range of additional expense. This market-driven equilibrium, however, presumes that the architect's fee adequately covers the costs of his services and of his potential liability. If his liability is to be expanded, the market will eventually have to take it into account.

52. See Lukowski v. Vecta Educ. Corp., 401 N.E.2d 781, 786 (Ind. Ct. App. 1986) ("The architect is not a warrantor of his plans and specifications. The result may show a mistake or defect, although he may have exercised the reasonable skill required.") (quoting Bayne v. Everham, 163 N.W. 1002, 1008 (Mich. 1917)).
C. Courts' Erroneous Treatment of the Standard

At least since the time of *Coombs v. Beede*, courts have held that the architect does not guarantee a particular result or a perfect plan. Courts mean different things, however, when they make these declarations. The Indiana Court of Appeals has clearly said that the absence of a warranty of perfect plans means that the plans may contain some defect or mistake and nevertheless remain within the standard of care. The Minnesota Supreme Court, on the other hand, appears to construe the *Coombs* principle to excuse only failures caused by unforeseeable complications, not those caused by lack of attention to routine functions. Too many courts take the approach of the Delaware Supreme Court in *Seiler v. Levitz*, which acknowledged that the standard of care did not require either "a perfect plan or a satisfactory result," but then upheld a finding of liability based on individual errors the architect committed.

The court relied solely on evidence bearing on skill and knowledge as applied to each defective item without considering the magnitude of the total errors in view of the architect's overall performance on the project.

In *Swan Wooster Engineering*, a Board of Contract Appeals explicitly articulated the analysis many other courts apply without discussion. Stating the basic standard of care exactly as it has been embraced by the majority of jurisdictions, the board said that the degree of ordinary and reasonable care, skill and diligence is as it would be expected from an average member of

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53. 36 A. 104 (Me. 1896).
54. Compare, e.g., *Coombs*, 36 A. at 105, (architect does not warrant "a satisfactory result") with *Lukowski*, 401 N.E.2d at 781 (architect does not guarantee "a perfect plan").
55. *Lukowski*, 401 N.E.2d at 786.
56. See *City of Mounds View v. Walijarvi*, 263 N.W.2d 420, 424-25 (Minn. 1978).
57. 367 A.2d 999 (Del. 1976).
58. Id. at 1007-08 (quoting *Bloomsburg Mills, Inc. v. Sordoni Constr. Co.*, 164 A.2d 201, 203 (Pa. 1960)).
59. Id. at 1008.
60. Id. at 1008-10.
62. Id. at 100,638.
the profession. Then, in the same paragraph, the board rejected testimony on the degree of the designer's error measured as a percentage of the total cost, observing that "the Board is not considering Appellant's overall professional competence, rather we are considering allegations of individual design deficiencies."64

The board clearly ignored the quantitative component of the standard of care and considered the allegations of design deficiencies item by item. The architect's overall professional competence on the particular project is exactly what the board should have considered if the diligence language in the standard is not surplusage; that is, if the standard of care requires not perfection but rather ordinary and reasonable care and diligence.

The board's reasoning leaves no room for errors of oversight or lack of thoroughness; instead the board examines in hindsight each defect alleged and measures it against the normal professional level of skill.65 The first claim in Swan Wooster is typical. The Board said that "there is no dispute that the manholes were designed as 48" diameter when in fact 72" diameter was required. On this basis we conclude that Appellant's design of the manholes was negligent."66 Under this approach, each error in the architect's work on a project can constitute negligence. If it causes delay, reconstruction or other expenses, the architect will be liable. This is the very level of perfection that, according to the usual articulation of the standard of care, an architect is not expected to meet.

Perhaps Swan Wooster was influenced by the strict compliance doctrine pervasive in government contracting,67 although the doctrine generally does not apply in construction contracts.68 The item-by-item approach to assessment of liability, however, is not unusual in the courts. One legal expert in this area has observed that "standard of care testimony usually

63. Id.
64. Id.
65. Id. at 100,638-43.
66. Id. at 100,638.
focuses on a few specific actions or inactions—a detail or a
calculation buried in reams of competent work. Rarely can one
have the trier of fact consider the defendant's conduct on the
project as a whole.69 Approached in this way, a "competently
executed project [will] inevitably have pockets of malprac-
tice."70 A claim against a design professional will focus exclu-
sively on these pockets, and if the court proceeds item by item,
the result will almost inevitably be a finding of liability.

Perhaps a court confronted with an item of clear, measurable
damage that is unquestionably attributable to an architect's
mistake is loathe to withhold relief, regardless of the number of
design elements properly handled by the architect. This item-
ized analysis is inconsistent, however, with the standard of care
articulated by the same courts that determine liability by item-
ization. Moreover, it is inconsistent with the economic balance
and risk allocation determined in the marketplace.

V. THE INDUSTRY ACKNOWLEDGES THE INEVITABILITY OF
ERRORS

Designs prepared by architects are unique products. Unlike a
manufactured item, a design cannot be pre-tested.

The design is a one-time-only result of many years of
schooling, apprenticeship, and service, fashioned to meet the
needs of a unique owner and a unique site. No amount of
effort, care, and conscientiousness on the architect's part
can foresee all the results of transforming a two-dimension-
al design into the multi-planed environment.71

69. Howard N. Ashcraft, Standard of Care in Professional Negligence Actions,
CONSTRUCTION BRIEFINGS (Hanson, Bridgett, Marcus, Vlahos & Rudy., Cal.), June
1993, at 1.

70. Id. Ashcraft also observes that juries tend to interpret a focus on the stan-
dard of care in an architect's defense as a tacit admission that an error was made;
therefore if the defendant cannot convince the jury that the standard was met, he
will have predisposed the jury to find liability. Id. Juries may be forgiven this infer-
ence, since courts fall prey to it as well, rejecting the possibility that an error may
not have constituted negligence.

71. Why Not Warrant? ISSUE: SPECIAL ISSUE OF THE NEWSLETTER OF THE AM. INS.
of Architects (Am. Inst. of Architects), Dec. 1986, at 6, reprinted in AIA Handbook,
supra note 3, § 2.2, at 8.
Imperfections occur even in manufactured products that are subject to theoretically foolproof inspection procedures. In comparison,

[a] construction project is a very different thing. It is built only once, and from a specially prepared design that contains thousands of elements. It is not unusual to find dozens of subcontractors employed on a project at the same time, performing different operations at different places. . . . In view of all the circumstances, it may be taken as axiomatic that some imperfections always occur in any substantial project.\textsuperscript{72}

Some industry groups, design professionals and owners have formally recognized this fact of construction life and have thus developed contract provisions to address it. The American Consulting Engineers Council (ACEC) has been able to convince some owners that a proper standard of design performance can be established for a given project that is dependent upon the complexity of the undertaking and the resulting expected range of error.\textsuperscript{73} Based on this range, a contingency fund is established by contract to cover the extra costs arising from inevitable problems during construction. Claims against the designer are precluded to the extent they fall within the range of the established contingency, which may vary from one-half to ten percent of the project cost. The ACEC contract clause has the following preamble: “The owner and engineer acknowledge that in a project of this magnitude and complexity, changes may be required as the result of possible omissions, ambiguities, or inconsistencies in the plans and specifications which may or may not be the fault of either of the parties hereto.”\textsuperscript{74}

Some governmental and private owners do not formally recognize this principle, but they do so tacitly by forbearing to pursue claims that flow from a level of error consistent with the owners’ experience with similar projects.\textsuperscript{75} These decisions are

\textsuperscript{72} JAMES ACRET, ARCHITECTS AND ENGINEERS 271 (3d ed. 1993).
\textsuperscript{73} Arnold L. Windman, Firms Use New Approach to Errors and Omissions Claims During Construction, ACEC BUS. PRAC. NEWS, Feb. 15, 1985, at 1.
\textsuperscript{74} Id.
\textsuperscript{75} The authors are aware of some owners that observe informal guidelines based on experience over many projects.
probably based on considerations of litigation cost versus long-term benefit, particularly in the case of government owners. There is little incentive, however, for more widespread recognition of this principle as long as courts are willing to allow owners to single out "pockets of malpractice" and recover damages that in some cases may exceed the designer's entire fee.\(^76\)

VI. THE PROPER APPLICATION OF THE STANDARD OF CARE

Some courts have shown signs of recognizing that reasonable diligence is not perfect diligence, and hence does not result in perfect plans. They perceive that an architect may exercise reasonable diligence and yet produce plans containing errors.\(^77\) The Supreme Court of Arizona has expressly made this analysis in *Chaney Building Co. v. City of Tucson*.\(^78\) Other courts have used language suggestive of such an approach or applied parallel concepts.\(^79\)

A. Chaney

In *Chaney*, the owner (City of Tucson) terminated the contractor (Chaney) because of construction delays on a fire station project.\(^80\) Chaney sued the City for breach of contract and also joined the architect, alleging negligence in the preparation of the plans. Chaney claimed that the architect's plans were defective and caused the delays. Shortly before trial the parties stipulated to the architect's dismissal with prejudice.\(^81\)

At trial, Chaney sought to introduce evidence of the defective plans, to which the City objected, arguing that the dismissal of the architect operated as an adjudication of the negligence action and established as res judicata the fact that there was

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\(^76\) See, e.g., Willner v. Woodward, 109 S.E.2d 132 (1959) (claim of $1,000 exceeded total fee of $985).

\(^77\) A reasonable analogy might be drawn to the tennis commentators' concept of an "unforced error" in a tennis match.

\(^78\) 716 P. 2d 28 (Ariz. 1986).

\(^79\) See infra part VI. B.

\(^80\) 716 P. 2d at 29.

\(^81\) Id.
no negligence in the preparation of the plans.\footnote{Id.} The trial court overruled the objection and permitted the evidence.\footnote{Id.} The Supreme Court of Arizona upheld this ruling.\footnote{Id.}

The supreme court relied partly on the principle that a party to a consent judgment, as compared with a court decision, is not collaterally estopped from litigating an issue unless he expressly agrees that the matter is deemed conclusively established.\footnote{Id.} But the court went on to observe, in regard to the architect's standard of care:

In [an earlier case],\footnote{Donnelly Constr. Co. v. Oberg/Hunt/Gilleland, 677 P.2d 1292 (Ariz. 1984).} we recognized that design professionals, such as architects, have a duty to use ordinary skill, care and diligence in rendering their professional services and must use their skill, care and diligence to provide sufficient and adequate plans. An architect's work can be inaccurate or imperfect without being an actionable deviation from the standards of care observed by design professionals.

From a review of the record, we believe Chaney was entitled to produce evidence and did produce evidence which showed the delays in its performance could have been caused by the plans and not by Chaney without [the architect] necessarily being negligent as a result.\footnote{716 P. 2d at 31 (citations omitted).}

Here, in this unusual procedural context, is explicit judicial acknowledgement that an architect may err or omit something in the plans or specifications, thereby causing identifiable damage, and yet still have met the standard of care.

\section*{B. Analogous Approaches}

Other courts have ventured in this direction. In a case decided before \textit{Walijarvi},\footnote{263 N.W.2d 420 (Minn. 1978).} the Minnesota Supreme Court opened the possibility of measuring the architect's responsibility according to the scope of his work (and fee) in comparison to the total

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\begin{itemize}
  \item \footnote{Id.}
  \item \footnote{Id. at 30.}
  \item \footnote{Id.}
  \item \footnote{Id.}
  \item \footnote{Id.}
  \item \footnote{Donnelly Constr. Co. v. Oberg/Hunt/Gilleland, 677 P.2d 1292 (Ariz. 1984).}
  \item \footnote{716 P. 2d at 31 (citations omitted).}
  \item \footnote{263 N.W.2d 420 (Minn. 1978).}
\end{itemize}
project. In \textit{City of Eveleth v. Ruble},\textsuperscript{89} the court listed the following circumstances to be considered in determining the standard of care, skill and diligence required of a design professional: "the terms of the employment agreement, the nature of the problem which the supplier of the service represented himself as being competent to solve, and the effect reasonably to be anticipated from the proposed remedies upon the balance of the system."\textsuperscript{90} The nature of the problem might well encompass the complexity of a huge project or the peculiar difficulties of a renovation. The terms of the employment agreement would encompass the professional's fee and the scope of work under his control. Under these criteria, read broadly, the architect's duty of skill and of diligence would properly be determined in light of the scope of the project undertaken, and not solely by a facile inquiry whether a reasonable architect would have made this or that particular error, considered in the abstract.

In the case of \textit{Sard v. Berman},\textsuperscript{91} the New York Supreme Court also appears to have recognized, at least implicitly, some relation between the liability of the architect for defects and the magnitude of those defects in relation to the entire project. The court said that "the alleged defects appear inconsequential especially when viewed in the light of what the plaintiffs paid for the construction, what they received in the prior action and what the property was then sold for."\textsuperscript{92} Although the case turned on construction defects, which implicated the architect's contract-administration duties, rather than on design defects, the main idea was present, that the extent of the defects must be measured against the overall scope of the project.\textsuperscript{93}

Apart from the Arizona Supreme Court in \textit{Chaney},\textsuperscript{94} the Colorado courts may have come closest to recognizing that a certain quantum of error is to be expected on any project, and that the magnitude of the error should be considered in view of the overall size of the project. In \textit{Kellogg v. Pizza Oven, Inc.}\textsuperscript{95} the

\begin{thebibliography}{99}
\bibitem{89} 225 N.W.2d 521 (Minn. 1974).
\bibitem{90} \textit{Id.} at 524-25.
\bibitem{92} \textit{Id.} at 267.
\bibitem{93} \textit{Id.}
\bibitem{94} 716 P.2d 28 (Ariz. 1986).
\bibitem{95} 402 P.2d 633 (Colo. 1965).
\end{thebibliography}
architect's cost estimate for the project covered only about two-thirds of what the final cost turned out to be.\textsuperscript{96} Evidence indicated that a normal margin of error in cost estimating would permit approximately a ten-percent variation.\textsuperscript{97} The court therefore held that the damages to which plaintiffs were entitled should be the net of this ten-percent normal variation, as well as any items caused by owner-initiated changes.\textsuperscript{98}

Relying on \textit{Kellogg}, the Colorado Court of Appeals in \textit{Jim Arnott, Inc. v. L&E, Inc.}\textsuperscript{99} stated that an architect would be liable for a faulty cost estimate resulting from a failure to include in the design all items necessary to construct the project but only if the error was substantial.\textsuperscript{100} The court measured an $8,000 error against the $1.5 million contract price for the building and found it to have been insubstantial.\textsuperscript{101}

The court's opinion in \textit{Jim Arnott} is not entirely consistent with the thesis posited here, however. Apparently, absent any design for water softeners in the architect's plans, water softeners of inadequate size were first installed and later had to be replaced with softeners of increased capacity.\textsuperscript{102} The owner sought recovery of the entire cost of installing both sets of water softeners.\textsuperscript{103} On the ground that the architect had negligently failed to assist in the design of the softeners, the trial court awarded as damages the cost to install the larger softeners, and this award was upheld on appeal.\textsuperscript{104} Thus, although the court of appeals found the design omission to have been insubstantial and denied recovery of the entire cost, it sustained the award of some damages for the error.\textsuperscript{105} If the error was truly insubstantial as compared to the total project scope, then it was within the standard of care and should have created no liability.

\textsuperscript{96} Id. at 634.
\textsuperscript{97} Id. at 636.
\textsuperscript{98} Id.
\textsuperscript{99} 539 P.2d 1333 (Colo., App. 1975).
\textsuperscript{100} Id. at 1339.
\textsuperscript{101} Id.
\textsuperscript{102} Id.
\textsuperscript{103} Id.
\textsuperscript{104} Id. at 1339-40.
\textsuperscript{105} Id.
In Allied Properties v. John A. Blume & Associates, Engineers, the California Court of Appeals applied economic considerations in determining the proper party to absorb the risk of error in construction plans. Relying on the rule that an owner warrants the plans to his contractor, the owner argued that an implied warranty should be imposed on the architect who prepared the plans for the owner. The court responded that the rationale for the owner warranty rule is that any additional costs caused by an error in the plans and specifications can be more equitably borne by the owner who receives the benefits than by the contractor. This rationale cannot be readily transferred to a professional who prepares plans for an owner and receives hourly compensation for his services.

This is sound reasoning. It first acknowledges that the owner ultimately reaps the benefits of the project. It then suggests that the architect's liability should be circumscribed by the reasonable scope of his duties, which scope is reflected in his fee in comparison to the cost of the project. The higher his fee is in proportion, the greater is his responsibility to ensure the project's conformance to the owner's intentions and expectations, but the greater also is his financial ability to devote more time to details.

VII. CONCLUSION AND PROPOSAL

Unless the legal standard for liability takes into account the economic balance struck by the parties in allocating duties and compensation, the market will adjust to meet the legal reality. The problem for architects in the courts today is that, while a standard of care appropriate to their true role is articulated, resolution of some cases permits complaining owners to recover for errors that were made by a reasonably diligent architect who, because he was reasonably diligent, complied with the standard of care. Uncertainty arises when the law appears to

106. 102 Cal. Rptr. 259 (1972).
107. Id. at 264.
108. Id. at 265.
109. Id.
promise one standard but often renders judgment according to another.

Courts should conform their case analyses to the standard they embrace, or vice versa. Earlier in this article, it was asserted that the market will establish architects' fees at a level commensurate with the economic value of their services, consistent with the expectations of owners regarding inevitable complications. But the market can efficiently account only for a clear legal standard. As long as matters remain confused, dollars will be unnecessarily spent on litigation, insurance or contingent protection.

Here it is proposed that sound reasoning and economic reality compel the conclusion that the standard as stated is correct, and that the architect should not be held to a standard of perfection, either as to his judgment on each detail of a project or as to his diligence overall. Resolution of claims should rest on proper application of this standard.

In practice, this principle would require an owner-plaintiff to show not just that errors and omissions occurred, but that the number and type of mistakes exceeded what would reasonably have been anticipated on a project of similar size and scope. Normally, expert testimony would be necessary to establish as part of the plaintiff's prima facie case of negligence that the expected range of errors had been exceeded. Damages recovered in cases where the range has been exceeded would be reduced by the amount attributable to those errors and omissions falling within the acceptable range of non-negligent mistakes.

Unquestionably, this evaluation is more difficult than the relatively straightforward calculation of error, causation and injury employed in the item-by-item approach. It is no more complex, however, than the determination usually made by juries of whether a doctor did all that he reasonably should have done and did it reasonably well. A jury merely must add a level of analysis. After weighing expert testimony on the propriety of the architect's judgment on particular technical questions to ascertain the degree of error, the jury must then weigh further expert testimony on the overall level of error that would

110. See supra text accompanying notes 18-22, 47-51.
have been expected, the similarity vel non of projects cited for comparison, the scope of work undertaken, and the size of the architect's fee in relation to the project cost and the damages claimed. This adjudicatory effort is necessary if the architect is truly required to be reasonably skillful and reasonably diligent, but not perfect.

A court cannot be expected to embrace an approach that is not advocated by the lawyers appearing before it. Counsel must recognize the economic logic of the owner-architect-contractor equation and the proper balance of risk among the three parties. They must present the court with the expert testimony and other evidence necessary for the court to apply the correct standard to the resolution of the dispute. The architect's lawyer who tries to defend his client's performance item-by-item has been drawn into battle in a canyon chosen by his adversary, and he can expect to be decimated in the crossfire.

Perhaps most importantly, architects should attempt to educate owners about what standard of care they are purchasing. Inserting a contractual limitation of liability,111 or a contingency fund provision such as the one used by the American Consulting Engineers Council, can focus attention on the issue and result in the amendment of either the fee or the scope of work to achieve an economically acceptable balance. Architects may be reluctant to raise the prospect of error and ensuing difficulties at the outset of a working relationship with their owners, but the alternative is to relegate the problem to post-project litigation and malpractice insurance. Hoping to buy the problem off by paying tribute, in the form of judgments or increasing insurance premiums, is like adding levees along the Mississippi: it only forestalls the flood and may add to its ultimate severity.

111. Some courts, based on individual states' laws, have taken a dim view of limitations on liability of design professionals, either on the theory that they constitute indemnification of negligence contrary to public policy or on the ground that the limitation provision was not conspicuous enough to have alerted the owner. See Building Design and Construction, Dec. 1993, at 25. Such measures are advocated here precisely for the purpose of raising the risk allocation issue and resolving it with the owner in advance.