

**SUPERIOR COURT OF CALIFORNIA  
COUNTY OF ORANGE, CENTRAL JUSTICE CENTER  
MINUTE ORDER**

**Department: CX101**

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<b>COURT CONVENED AT:</b> 9:00 A.M.	<b>ON:</b> JUNE 7, 2005
<b>JUDGE / COMM:</b> DAVID C. VELASQUEZ	<b>CLERK:</b> C. CARR
<b>BAILIFF:</b> NONE	<b>REPORTER:</b> NONE

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**AND THE FOLLOWING PROCEEDINGS WERE HAD:**

**02CC00007            CASTRON VS FIELDSTONE PACIFIC LIMITED PARTNERS, ET AL.**

Consolidated with: 02CC00198, Pennington vs Fieldstone Pacific Limited Partners and 03CC00197, Salaets vs Fieldstone Pacific Limited Partners

**IN RE: Ruling on Defendants' Motion to Exclude Plaintiffs' Proffer of Certain Scientific**

**Evidence**

Plaintiffs' request to withdraw certain evidence from consideration by the court

Plaintiffs' request to withdraw certain evidence from consideration by the court is denied.

After the court issued its tentative ruling, plaintiffs are now attempting to withdraw its proffer of evidence of the results of the STADIUM Model, the "modified RCPT ionic migration test of 'labcrete' using sodium hydroxide in both the upstream and downstream cells," and the moisture dome moisture emission test (anhydrous calcium chloride test) to measure water or water vapor "transmission" through a concrete slab. Once a motion has been submitted by a party for consideration by the court at the close of the evidence and after the court has issued its tentative ruling, for policy reasons underlying the tentative ruling system, the party cannot withdraw the issue in order to deprive the court of its ability to rule on the matter.

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Although the court could not find authority directly on point, it draws an analogy from the principles governing whether a party has the right to dismiss its lawsuit after tentative ruling adverse to the plaintiff after either a trial or a dispositive motion. (See *Groth Bros. Oldsmobile, Inc. v. Gallagher* (2002) 97 Cal.App.4th 60 [allowing a plaintiff to file a voluntary dismissal without prejudice in the face of a tentative ruling that the trial court will sustain a demurrer without leave to amend, wastes the time and resources of the court and other parties, promotes annoying and continuous litigation, and would undermined the tentative ruling system].) The policy considerations in support of the tentative ruling system at issue in the *Groth* case are equally valid here where, early into the *Kelly-Frye* hearing, the court granted the parties' requests for a tentative ruling and the opportunity to brief the court and give oral argument based upon the tentative ruling. When a court has issued its tentative ruling after an arduous and protracted hearing involving key issues of fact and law in the case, it should not permit a party to manipulate the judicial process to avoid the consequences of an adverse ruling. If a party were free to do so, "litigation would become interminable, because a party who was led to suppose a decision would be adverse to him could prevent such decision and begin anew, thus subjecting the defendant to annoying and continuous litigation," wasting "the time and money of the people in a

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fruitless proceeding in the courts.” (*Groth Bros. Oldsmobile, Inc. v. Gallagher* (2002) 97 Cal.App.4th 60, 67.)

The present hearing exceeded well over 120 days of testimony from more than 20 very expensive experts, involved the time of six attorneys, and included the marking of over 400 exhibits. Allowing the plaintiff to withdraw certain evidence in the face of the tentative ruling in the present case, and under the instant circumstances, wastes the time and resources of the court and the other parties, promotes annoying and continuous litigation, and undermines the tentative ruling system. (See also *Mary Morgan, Inc. v. Melzark* (1996) 49 Cal.App.4th 765; and *Hartbrodt v. Burke* (1996) 42 Cal.App.4th 168. In accord *Zapanta v. Universal Care, Inc.* (2003) 107 Cal.App.4th 1167; and *Kyle v. Carmon* (1999) 71 Cal.App.4th 901.)

Discussion of the merits

Defendants’ motion is granted in part and denied in part as follows:

It has long been the rule in California that evidence of a scientific test will not be admitted unless its scientific basis and reliability are generally recognized by competent authorities. A three-pronged test for establishing scientific basis and reliability, first set forth in the federal district court case of *Frye v.*

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*United States*, was approved by the California Supreme Court in *People v. Kelly* (1976) 17 Cal.3d 24.

Evidence of a new scientific test or method is admissible if (1) the reliability of the method is generally accepted by recognized authorities in the scientific field in which the test belongs; (2) a witness giving expert testimony on the issue of general acceptability is qualified as an expert on the subject; and (3) it is shown that correct scientific procedures were used in administering the method. The "qualified expert" witness "must have academic and professional credentials which equip him to understand both the scientific principles involved and any differences of view on their reliability." (*People v. Brown* (1985) 40 Cal.3d 512, 530 and 533, judgment reversed on other grounds.)

"Ideally, resolution of the general acceptance issue would require consideration of the views of a *typical cross-section of the scientific community*, including representatives, if there are such, of those who oppose or question the new technique. (Citation omitted.) In consideration of judicial economy, a court may scrutinize published writings in scholarly treatises and journals in lieu of live testimony. . . [T]he burden of showing general acceptance lies with the proponent of the evidence to show a scientific *consensus* (italics added), and that if a fair overview of the literature discloses that scientists significant either in number or expertise publicly oppose [the technique] as unreliable, the court may

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safely conclude there is no such consensus at the present time. (Citation omitted.)” (*People v. Leahy* (1994) 8 Cal.4th 587, 611-612, internal quotations omitted.) “General acceptance is not shown when it appears that major voices in the scientific community” oppose the use of the new method.” (*Id.*) “[T]he *Frye* test does not demand absolute unanimity of views in the scientific community .... Rather, the test is met if use of the technique is supported by a clear majority of the members of that community. . . . Of course, the trial courts, in determining the general acceptance issue, must consider the quality, as well as quantity, of the evidence supporting or opposing a new scientific technique. Mere numerical majority support or opposition by persons minimally qualified to state an authoritative opinion is of little value under the foregoing cases.” (*Ibid.*)

In determining whether a proffered scientific method is “new” the court may also consider whether the test is being used for a purpose other than that for which the test was designed. (*Keene Corp., Inc. v. Hall* (1993) 96 Md.App. 644,655.) The “application of an arguably accepted technique for an entirely new purpose has been subjected to the *Frye* analysis, and held not generally accepted in the relevant scientific community . . . .” (*Id.*)

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Consensus standards promulgated by industry groups within the relevant community are not dispositive of the issue whether a new test or method has gained general acceptance by the scientific community, but they are compelling evidence that such test or method is generally accepted.

As to the particular scientific methods to which defendants have objected, by the preponderance of the evidence, the court finds and rules as follows:

Scanning Electron Microscopy (SEM)

Defendants' motion to exclude evidence and testimony of the results of scanning electron microscopy ("SEM") as the "primary or principal" basis of opinions predicting whether damage to hardened concrete has occurred as the result of chemical attack by sulfates in the soil underlying it on grounds the use of SEM for such purpose is not generally accepted in the scientific community is denied.

The court finds that the issue presented is not subject to review under the *Kelly-Frye* standard inasmuch as the proffered opinions do not involve a *new* scientific test or method. (*Roberti v. Andy's Termites* (2003) 113 Cal.App.4th 893.) Defendants do not attack the use of SEM *per se* to generate submicroscopic images. The use of SEM for such purpose is not new. Nor is it novel to use an SEM

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generated image as the basis of predictions concerning the physical properties of hardened concrete. SEM is a recognized method of petrographic examination. (Exhibit 2: ASTM 856 § 6.3) It is the general consensus in the scientific community concerned with the investigation of hardened concrete that petrographic methods are appropriate to determine the properties of concrete from construction. (ASTM 856 § 4.2.) An example of the use of petrographic methods is the determination of whether concrete has been subjected to or affected by sulfate attack. (ASTM 856 § 4.2.7.)

Defendants object that the *manner* in which SEM technology was used, i.e., as the sole or principal basis of an opinion, does not satisfy the third prong of the *Kelly-Frye* test, namely, whether the test was properly performed in the instant case. (*People v. Kelly* (1976) 17 Cal.3d 24, 30 [“the proponent of the evidence must demonstrate that correct scientific procedures were used in the particular case”].) Defendants contend that because there is evidence SEM images were used as the sole basis of the plaintiffs’ experts’ opinions, rather than as one of several bases of the opinions expressed, the manner in which SEM was used is not reliable. (See Exhibit 28: ASTM-STP 169C, Petrographic Examination, Bernard Erlin, at 212, and ASTM 856 § 6.3.) Defendants also assert that plaintiffs’ experts used SEM as the sole investigative tool rather than as a secondary tool to other

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petrographic tests. However, the evidence is in dispute whether (1) plaintiffs' expert resorted to the use of SEM without first trying other petrographic means of examining the concrete core samples in question and (2) whether SEM images were used by plaintiffs' experts as the "primary or principal" bases of the opinions expressed by them, i.e., that the opinions of plaintiffs' experts were based to the largest extent on their interpretation of the SEM images. (Testimony of Niels Thaulow.) This does not present an issue to be determined under a *Kelly-Frye* analysis. But, assuming for purposes of argument that the opinions of the plaintiffs' experts were based only on their interpretation of SEM images, the situation presents only a battle of competing opinions. This is a matter of credibility best reserved for the trial on the merits of the plaintiffs' claims. This court should withhold judgment as to the credibility of the experts on this point until it has had the benefit of all the relevant evidence surrounding the manner in which the specific sampling and testing was conducted with respect to the concrete at issue here. Suffice it to say, plaintiffs have presented sufficient evidence to justify a finding that proper procedures were followed. (*Evidence Code* § 403(a).)

Furthermore, defendants object, in a related argument, that the court should not accept the opinion of plaintiffs' expert that evidence of chemical damage to concrete can be seen submicroscopically even

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if it cannot be observed at lower levels of magnification or with the unaided eye. In contrast, defendants' experts opine that if concrete is damaged by chemical attack, the majority view among scientists is that such damage must be observable at the microscopic or lower level of magnification. However, such disagreement between experts does not involve a new technique of test. (See *Roberti v. Andy's Termites, supra.*)

At trial, plaintiffs' experts may testify regarding the images generated by SEM and state their opinion whether the presence of certain mineral deposits and submicroscopic cracking are suggestive of damage due to chemical attack. This is analogous to the way in which a radiologist might interpret an x-ray in forming a medical opinion of the presence of physical features in the body of a patient suggestive of injury or disease. Whether plaintiffs' experts have improperly used SEM as the primary or principal test is a matter going to the weight of the opinions to be expressed.

However, even if plaintiffs' expert used only SEM as the basis of his opinions in the case, no *new* method or test was used.

Water Cement Ratio

Defendants' motion to exclude evidence and testimony of the water to cement ratio in the original mix

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design of 8 year old in-service concrete by petrographic means is granted.

The use of petrographic means to determine the water to cement ratio of the original mix of hardened concrete is generally accepted for purposes of research, where known reference samples have been prepared, or when in-service concrete is relatively young. (See Exhibit 89, Properties of Concrete, *A.M. Neville*, p. 636; Exhibit 90, Methods Used in Petrographic Studies of Concrete (PCA Research Department), *Bernard Erlin*,; Exhibit 91, *Concrete Petrography (A Handbook of investigative techniques)*, pages 141, 146 and 148; and Exhibit 99, Chemical Analysis of Concrete, *Wm. Hime*, generally and pages 115-117.) However, “[b]ecause of the variable nature of cement pastes, the age of pastes, and exposure to a variety of external influences, there is no generally accepted standard procedure that employs microscopical methods for determining the *w/c* or *w/cm* of hardened concrete . . .” which has been in service for the number of years as the concrete involved in the instant action. (ASTM 856 § 12.3.) While estimation of the original *w/c* of hardened concrete by petrographic means is useful for purposes of quality control or research, where comparisons can be made to known reference samples, such estimations cannot be reliably made for concrete which has been in place for a number of years under uncontrolled circumstances. The aging process of concrete is very

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complex. The estimation of the original w/c must contend with many variable influences such as the characteristics of the mixing and placing processes, vagaries in the sampling methods, variable temperature and moisture, the presence of admixtures, the complexity of the hydration process, re-mixing of the concrete at the site of placement, questions about the source of the cement used to make the paste, alterations of the physical properties of the paste due to chemical alteration such as carbonation, changes in porosity due to leaching, and the subjective abilities of the petrographer.

(Exhibits 34 and 35.)

Plaintiffs have offered several tests approved by European industrial standards to determine the original w/c of hardened concrete. Plaintiffs argue that such methods have also been used in Canada and the United States, *ergo*, they are generally accepted in the relevant scientific community.

However, plaintiffs have not presented persuasive evidence that scientists and researchers here in the United States have generally accepted such methods.

Neither side has presented the court with authority of what constitutes a relevant scientific community. Plaintiffs urge the court to find that the relevant scientific community in the instant case is global in scope. This may be the case given the international dialogue and involvement of the

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scientists on both side of the Atlantic Ocean concerned with the investigation, research, design and study of the physical properties of concrete. But assuming that to be the case, plaintiffs have not shown, by a preponderance of the evidence, a consensus of a cross-section of the world-wide scientific community on the tests at issue herein to determine the w/c of ten year old field concrete. The court finds that there are industry standards in place in Europe supportive of some of the methods used by plaintiffs' experts to determine the water/cement ratio of relatively old field concrete. However, plaintiffs have not carried their burden to show the European standards represent an *international* consensus. The fact that the European standards are not accepted by those involved in setting consensus standards here in the United States is evidence of the lack of an international consensus on those test methods proffered by the plaintiffs. Such disagreement by major voices in the scientific community on this side of the Atlantic is strong evidence that such tests are not generally accepted either here in the United States or internationally.

STADIUM Computer Model

Defendants' motion to exclude evidence and testimony of the results of the STADIUM computer model, and opinions based thereon, to predict the remaining service life of in-service concrete is

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granted.

In proving whether a new method has been generally accepted by the relevant scientific community, it is "questionable whether the testimony of a single witness alone is ever sufficient to represent, or attest to, the views of an entire scientific community . . . . Ideally, resolution of the general acceptance issue would require consideration of the views of *a typical cross-section of the scientific community*, including representatives, if there are such, of those who oppose or question the new technique. (Citation omitted.)" (*People v. Leahy* (1994) 8 Cal.4th 587, 611-612, internal quotations omitted.) A "qualified expert" on the issue of scientific acceptance must also be "impartial," that is, not so personally invested in establishing the technique's acceptance that he might not be objective about disagreements within the relevant scientific community. (*People v. Brown* (1985) 40 Cal.3d 512, 530 and 533, judgment reversed on other grounds.)

In the present case, plaintiffs, as proponent of the new scientific method, have not carried their burden to show that the STADIUM model has gained general acceptance by a clear majority of the relevant scientific community to predict the remaining service life of in-service concrete. Because STADIUM is based upon a proprietary and secret computer program, it has not been subject to

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objective review by independent scholars and practitioners in the scientific community concerned with the investigation of the physical properties of hardened concrete. Therefore, the degree to which the model accurately predicts reality cannot be validated. Nor can particular tests results be verified by independent reviewers. There is literature available on the subject of computer modeling to predict the service life of concrete, but none specifically regarding STADIUM written by persons unrelated to the creators of the model.

Furthermore, STADIUM is not widely used by investigators other than the owners of the model to predict the remaining service life of in-service concrete. Plaintiffs principally peg their case for the general acceptance of STADIUM on the testimony of Jacques Marchand, the creator of STADIUM. Mr. Marchand is financially interested in, and may hope to enhance his professional reputation on, the success of STADIUM. The court cannot say he is a disinterested witness. Such evidence is insufficient "to represent, or attest to, the views of an entire scientific community." (See *People v. Leahy* (1994) 8 Cal.4th 587, 611-612.)

Moisture Dome

Defendants' motion to exclude evidence and testimony of the results of moisture dome tests to

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measure “transmission” of moisture through an in-service residential concrete slab as a predictor of permeability, porosity or water cement ratio is granted.

The use of the moisture dome test (anhydrous calcium chloride test) is governed by the industry consensus standards set forth in ASTM standards E 1907 (Exhibit 100) and F 1869 (Exhibit 101). According to the standards, such test is designed to measure the “amount of water or water vapor present in or emitting from concrete slabs” and “the rate of moisture vapor emitted from . . . concrete floors” in “evaluating the moisture-related acceptability of concrete slabs to receive moisture-sensitive manufactured finish products, including . . . resilient floors” (ASTM 1869 § 1.1, and ASTM 1907 §§ 1.1 and 4.1). It is one of the tests used to “determine if unacceptable moisture is present in or being emitted from concrete slabs.” (ASTM 1907 § 4.1.) The test does “not cover the adequacy of a concrete floor to perform its structural requirements.” (ASTM 1907 § 1.3.) Using the test for purposes other than determining the readiness of a slab to accept moisture-sensitive flooring would be a novel use of the test subject to the *Kelly-Frye* standard.

Plaintiffs’ experts opine that the moisture dome test is appropriate to measure the rate of water vapor *transmission* through the entire volume (from bottom to top) or depth of the concrete slab. According

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to those experts, the results of the moisture dome tests are used to determine porosity or water cement ratio. Defendants assert the test only measures vapor emitting from the top portion of a slab. The court finds defendants' experts are correct. The use of moisture dome test results is generally acceptable only to determine the acceptability of slabs to received water sensitive flooring products, and not for the purposes urged by the plaintiffs.

According to defendants' experts Messrs. Hime and Kanare, leading personalities in the field of concrete research and methods of investigation, calcium chloride tests do not measure the vapor passing through the entire course of the slab, but rather, only a portion of the "free" water emitting from a thin surface of the top layer of the concrete to a depth of approximately 3/4 inch. The term "free" water refers to all sources of water affecting the slab from any direction. Experiments testified about by Mr. Kanare, some using moisture probes in concrete slabs and others testing slabs of different thicknesses, showed that moisture dome tests did not reflect moisture conditions in the lower regions of a slab. Moisture dome tests cannot distinguish the source of the moisture being emitted from a slab. No literature exists supportive of the use of this test to determine permeability, porosity or water cement ratio.

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Mr. Kanare testified that it is now the consensus of the ASTM that moisture domes do not measure either vapor “transmission” through the entire depth of the slab or permeability. References to “transmission” in ASTM 1907 are being revisited by the committee in charge of recommending changes in the standards and likely will vote to remove such references.

Rapid Chloride Permeability Test (RCPT)

Defendants’ motion to exclude evidence and testimony of the forensic use of RCPT results to determine the ability of in-service concrete to resist the movement of chloride or other ions by diffusion, or moisture penetration, or to predict the remaining service life of concrete is granted. RCPT is governed by consensus standards ASTM 1202. The test “covers the determination of the electrical conductance of concrete to provide a rapid indication of its resistance to the penetration of chloride ions.” (ASTM 1202 § 1.1.) According to ASTM 1202, RCPT “is applicable to types of concrete where correlations have been established between this test procedure and long-term chloride ponding procedures . . . .” (Id.) That is, the test is to be calibrated based on correlation studies using the same mix and environmental history as the test sample. No such correlations are possible in the present case because there are no samples of original mix which have been

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<b>JUDGE / COMM:</b> DAVID C. VELASQUEZ	<b>CLERK:</b> C. CARR
<b>BAILIFF:</b> NONE	<b>REPORTER:</b> NONE

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**AND THE FOLLOWING PROCEEDINGS WERE HAD:**

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subjected to the same environmental history as the in-service concrete which is the subject of this case. Plaintiffs seek to use the values obtained from the RCPT tests done in this case without the benefit of the calibration required by § 1.1.

ASTM 1202 “is suitable for evaluation of materials and material proportions for *design purposes and research and development*.” (ASTM 1202 § 4.2.) RCPT is also an appropriate quality control tool.

However, plaintiffs have not carried their burden to show RCPT has been generally accepted by the scientific community as a valid *forensic* tool to determine the ability of 10 year old in-service concrete to resist the movement of ions by diffusion. “[T]he *Frye* test does not demand absolute unanimity of views in the scientific community .... Rather, the test is met if use of the technique is supported *by a clear majority* of the members of that community.” (*People v. Kelly, supra*, at 612, internal quotation marks omitted.) Plaintiffs have not shown that the use of RCPT in the manner in which plaintiffs propose to use the results of the test have been adopted by “a clear majority of the members” of the scientific community concerned with the investigation of hardened concrete.

Further, plaintiffs have not carried their burden to show general acceptance of the variance from the procedures of ASTM 1202 used by plaintiffs’ experts when they altered the solution formula in the

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negatively charged chamber of the test apparatus. In the ASTM 1202 test apparatus, the test sample is sandwiched between two chambers containing solution. One chamber is to contain a sodium chloride solution (negatively charged chamber) and the other a sodium hydroxide solution (positively charged chamber). Plaintiffs' experts used sodium hydroxide in both chambers. Plaintiffs have not presented evidence of the general acceptability of this variance in the procedures. Plaintiffs have failed to carry their burden of proving the general acceptability of the RCPT to test moisture penetration. Plaintiffs acknowledge the "absence of a specific ASTM test for moisture intrusion." (Plaintiffs' Opposition to Morion in Limine No. 4 of Standard Concrete Products at pages 4-5.)

Vapor Transmission Test (VTT of Cup Test); ASTM E 96 and ISO 12572

Defendants' Motion to exclude evidence and testimony of the results of ASTM E 96 to predict water vapor transmission rate, water vapor permeance, or water vapor permeability of hardened concrete is granted.

Plaintiffs have failed to carry their burden to prove that ASTM E 96 is generally accepted by the scientific community to measure water vapor transmission rate, water vapor permeance, or the water

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vapor permeability of hardened concrete. Using the test to predict the physical properties of materials which are not covered by the test would be a novel use of the test subject to the *Kelly-Frye* doctrine. ASTM E 96 embodies a consensus standard to measure the transport quality of “sheet-like” materials not including residential concrete slabs. The test covers “the determination of water vapor transmission . . . of materials through which the passage of water may be of importance, such as *paper, plastic films, other sheet materials, fibre boards, gypsum and plaster products, wood products, and plastics*. The test methods are limited to specimens *not over 1 1/4 in. (32 mm) in thickness* except as provided in Section 9.” (ASTM E 96 § 1.1.) The exceptions noted in section 9 are not relevant to concrete slabs of the thickness of the slab concerned in the present case. The list of materials to which the test is appropriate are not of a kind similar to residential concrete slabs. The thickness limitation of the test specimens does not include 4 inch thick concrete slabs.

Plaintiffs have also failed to show the general acceptance by the scientific community of the manner in which the ISO 12572 was conducted in two respects. Plaintiffs have represented that its experts used the “wet cup” method by placing the water in direct contact with the specimen. According to ISO 12572 § 7.2, an air space of approximately 15 mm should separate the water from the specimen. Secondly,

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plaintiffs' experts sliced the specimen core in a way which removed the top surface layer of the slab. ISO 12572 § 6.1 provides that specimen preparation "shall not . . . damage the surface in ways which affect the flow of water vapor." By removing the top layer of the slab in the test preparation process, the flow of vapor through concrete is affected. Therefore, plaintiffs have not shown that correct scientific procedures were used in administering the method.

The clerk of the court is hereby ordered to serve this minute order on all parties. ENTERED:6-7-05  
Michael Turner, Kasdan, Simonds, Riley & Vaughan, 2600 Michelson Drive, Suite 1000, Irvine, Ca 92612  
Mark Peterson, Andrews & Rhodes, 21660 Copley Drive, Suite 210, Diamond Bar, Ca 91765  
William Ingalsbe, Monteleone & McCrory, Suite 130, 450 West Fourth Street, Santa Ana, Ca 92701

CLERK'S CERTIFICATE OF MAILING (CCP 1013a) - I certify I am not a party to this cause, am over 18, and a copy of this document was mailed first class postage prepaid in a sealed envelope addressed as shown listed above. Mailing and execution of this certificate occurred on 6-07-05 at Santa Ana, California.

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ALAN SLATER, EXECUTIVE OFFICER/CLERK, by: \_\_\_\_\_, Deputy.

Christine Carr