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SPECIAL EDITION



Understanding The Accident Reconstruction Credential Con Game.

If you think you already know how to challenge an engineer's credentials, this article may cause you to think otherwise!

By Sal Fariello

The sad truth about accident reconstruction is that some of its practitioners degrade it into nothing more than a third rate bunco game. The victim of the game is the unwary lawyer who, when in need of an accident reconstruction expert, hires a so-called "accident reconstruction engineer." When you hire such an engineer, there is a pretty fair chance you are going to get taken by a legal system bottom-feeder who failed at real engineering and chose to hang out a shingle claiming to be an accident reconstructionist while having little or no actual training, but possessing some impressive sounding but phony credentials. The courts are starting to catch on to this racket and the lawyer who does not understand the relevant issues risks unnecessarily losing a case.

The first thing the attorney contemplating hiring a reconstruction "engineer" must understand is that accident reconstruction is not engineering. It never was and never will be. Most lawyers don't have a clue as to what qualifications a real accident reconstructionist has. They incorrectly assume that an engineer is qualified to be an accident reconstructionist. They make the same erroneous assumptions about physicists and other persons with scientific backgrounds.

The Florida Department of Business and Profes-

sional Regulation, upon reviewing what accident reconstructionists really do, correctly concluded that it is not engineering. This issue was explored in depth by members of the Society of Automotive Engineers (SAE), and a technical paper was published by the SAE in 1994 titled Qualifications of the Reconstructionist: Differing Points of View, SAE No. 941053. Here is what one of the co-authors of the paper said:

"I submit that there is no absolute or exclusive relationship between engineering and accident reconstruction. While there are some noted and talented accident reconstructionists who have, as part of their background, engineering degrees, the terms "accident reconstructionist" and "engineer" are not interchangeable ... Consider what "special" training in traffic accident reconstruction one receives in the pursuit of a traditional engineering education. I would submit that there is virtually no accident-specific training that goes on in traditional engineering courses. Baker pointed out that one needs but "a working knowledge of basic sciences, especially some aspects of physics, dynamics, psychology, optics and mathematics." A "working knowledge" is

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not a degree or license as a Professional Engineer. The term “a working knowledge” infers simply a foundational understanding, not a traditional degree, in the basic sciences. A working knowledge can be obtained through a small portion of the lower division dynamics course and/or the first few sessions of a physics 101 level course. A working knowledge can be the product of little more than advanced high school study. The truth is there simply are no accredited or widely recognized traditional engineering classes dedicated to accident reconstruction ... The only university level courses in this field anywhere in the United States are those offered through established, so-called “police” training schools and institutions ...”

Here is what another one of the authors said:

“Foundation knowledge in physics and math should be attained through traditional course work offered through community colleges, universities, or other schools. Specialized knowledge regarding reconstruction techniques, procedures, formulas, etc., can be attained by reading accident reconstruction texts and attending accident reconstruction courses, such as those offered through the SAE. Reconstruction courses offered as part of advanced police training may meet this need if they are taught by qualified reconstructionists, have adequate technical content, and have as pre-requisites an adequate foundation in physics and math.”

There is absolutely nothing in the background of a degreed engineer that ipso facto qualifies him or her to be an accident reconstructionist. So what foundation education does a person really need to be eligible to be trained as an accident reconstructionist? This question is answered in one of the most widely read and respected accident reconstruction texts ever published. In Northwestern University’s The Traffic Accident Investigation Manual it states:

“Reconstruction skills require a working knowl-

edge of arithmetic and algebra, a good understanding of dynamics, especially as applied to vehicles, a fair idea of reaction time, and familiarity with information gathering processes ...”

At Northwestern University’s Center for Public Safety website there is information posted about their offering of a basic physics and math workshop. The course description states the following:

“This course reviews mathematics and elementary physics used in traffic accident reconstruction. Basic Physics and Mathematics Workshop is designed as a refresher course for the student who has studied these concepts in the past but may have not used them for years. Students will find this course valuable in building a foundation for accepted theories in accident reconstruction courses.”

The aforementioned Northwestern University refresher course covers algebra, geometry, trigonometry, vectors and forces (kinetics). This stuff is all advanced high school physics and math! All major accident reconstruction schools associated with reputable universities such as Texas A&M, Northwestern, and University of North Florida teach specialized courses in applied physics for accident reconstruction.

Based on the foregoing, it is simply a fraud to assert that being an engineer affords one de facto qualification as an accident reconstructionist. At least one federal court has recognized this, as reflected in the decision in Wilson V. Woods, wherein a mechanical engineer claiming to be an accident reconstructionist was disqualified. See Wilson v. Woods, 163 F.3d 935.

The engineer disqualified in Wilson was a mechanical engineer. What kind of an engineer should he have been? A civil engineer? An electrical engineer? A software engineer? How about a chemical engineer, or maybe an industrial engineer? Actually, none of these degrees affords anybody de facto

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qualification in accident reconstruction. That's essentially the point the court made in Wilson.

So why do so many engineers seem so desperate to mislabel accident reconstruction "engineering" when it is really not engineering at all? There are two primary reasons for this:

- 1) To impart an aura of sophistication to accident reconstruction science which it does not deserve.
- 2) To delude themselves into thinking they are practicing "engineering" where in fact many engineers doing accident reconstruction failed at real engineering or never did any engineering at all.

About point (1), accident reconstruction entails a lot of training and experience in using certain tools. A tool box full of wrenches doesn't make a person a mechanic. The training and experience in using the tools does. The reconstructionist's tools are basic high school physics, algebra, trigonometry and geometry along with basic Newtonian mechanics. Universities that teach accident reconstruction expect the student to have studied these topics in high school, or perhaps junior college. Applied physics is taught in reconstruction schools to train the accident reconstructionist in specialized applications of physics to solving specific reconstruction problems.

Further to point (1), it must be emphasized that accident reconstruction is no more complicated than the proper application of the aforementioned math and physics skills. No, it is not rocket science, although some engineers practicing accident reconstruction delude themselves and others into believing it is. They will do anything it seems, to complicate reconstruction and shroud it in an aura of undeserved sophistication and complexity so as to augment their self-importance. An example of this dynamic at work can be found in the work done by some engineers and physicists to solve a reconstruction problem. When their notes are subpoenaed by opposing counsel for review by their own expert, what is often discovered are simple calculations made to seem far

more complex by the unnecessary use of calculus where basic algebra would suffice. This mathematical obfuscation is often intended to confuse an opposing expert or impress a client so as to justify a hefty bill. I personally have no aversion to calculus and occasionally use it myself where it is necessary to solve an occupant kinematics problem, but generally it is totally unnecessary. Virtually any accident reconstruction problem can be solved using the most basic of math skills.

A person who habitually uses more complicated mathematical constructs than are needed to solve a reconstruction problem is like the classic "bullshit artist" who finds it necessary to use a hundred words to say what can be said with ten words. Virtuoso mathematics, like virtuoso language, might have its place in some settings, but not in accident reconstruction when basic math best describes what happened to cars and bodies in a crash.

Now on to point (2) above, the matter of engineers who delude themselves into thinking they are practicing engineering doing accident reconstruction. If a lawyer were to thoroughly scrutinize the background of the average engineer-turned-accident reconstructionist, you would discover that such an engineer probably never actually practiced any real engineering. What really happens to a lot of engineering school graduates is nicely described on a website called ThomasNet.com. If you go to www.news.thomasnet.com/IMT/archives/2005/06/newsflash_there.html there is an article posted titled Newsflash: There is NO Engineering Shortage. I'll talk more about the so-called engineering shortage in the US in a moment, but for now I want to focus on reader comments posted on this website. A certain Bill Haney posted the following on June 7, 2005:

"The problems I see with our profession are multiple and most of them were touched by other speakers. What I would like to describe here is what

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happens to a good percentage of graduates when they hit the job market.

1. They become “educated supervisors” for example when working for the “Big Three” [car manufacturers].
2. Without getting enough engineering experience they become “Project Managers” which most of the time means “paper pusher.”
3. They end up in some positions related to the latest “buzz words” like ISO 9000[sic], or Lean or 16949 or Black belts in 6 Sigma or Kaizan or whatever flavor of the day is and either are trying to cope with the bureaucracy or fight it, they end up wasting a lot of energy here instead of towards the profession.
4. They get trapped “inside the box” which is a computer and they become “Cad operators.”

There are so many traps along the way that sometimes one wakes up 40, unemployed, with 1.5 kids and family, mortgage and what not, realizing he or she’s out of it.”

What Mr. Haney stated does not paint a pretty picture for engineers. A good number of them wind up becoming chair bound paper pushers and slowly devolve into uselessness and unemployability. While this is going on, so many colleges anxious to attract tuition paying students blabber about an engineering shortage that really does not exist in the US. There may be a shortage of really good engineers, but there is no shortage of superfluous engineering graduates. Bill Schweber, the Executive Editor of EDN Magazine did a nice job of debunking the myth of the engineering shortage. If you want to read his article, go to www.edn.com/article/CA529820.html. Here’s the simple truth: There is no shortage of engineers in the US.

Whereas so many of them gravitate into irrelevance as Mr. Haney suggested, their last best hope for employment is litigation consulting, where no real engineering goes on anyway! Trying to salvage what little self-respect may be left after getting pummeled trying to be real engineers, they salve their bruised egos by telling themselves that by doing ac-

cident reconstruction they are practicing “engineering.” To admit otherwise would present more cognitive dissonance than they can handle. How does one cope with falling onto the ash heap of burned out engineers who never engineered anything and who wind up selling advice to lawyers while masquerading as accident reconstruction “engineers?”

Design and build a bridge. That’s real engineering. Design and build a skyscraper. That’s real engineering. Put a man on the moon. Now that’s an engineering feat! Reconstruct an accident. That’s not engineering. Not even close. True engineers deserve the greatest of admiration and respect. The flunkies however, usually gravitate to accident reconstruction. And the credentials they proffer often reflect just how low they have sunk.

All too often you will find engineers listing on their CV perhaps one course from Northwestern University (as noted by the federal judge in Wilson), and one or two “courses” given by some “institute” which presented the course at the engineer’s office. I strongly urge lawyers to check these institutes out most thoroughly. They often turn out to be one or two accident reconstructionists who appointed themselves an “institute” and empowered themselves to issue certificates as credentials.

To become a real accident reconstructionist requires between 500 and 1000 hours of classroom training along with a lot of practical experience. A lot of quack engineers claim to be able to accomplish all that with one 40 hour course. Ah, but they have

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an ace in the hole! Their CV will often list a so-called “ACTAR” certification. ACTAR stands for Accreditation Commission for Traffic Accident Reconstruction. They claim to “accredit” reconstructionists, but not certify them. Nobody accredits ACTAR. I know a lot of really fine reconstructionists who want nothing to do with ACTAR because they have created “tests” that falsely “qualify” people who have only the most rudimentary reconstruction training, and they allow people to take the test who have padded their CV’s with questionable “courses.”

It is quite common to find marginally trained engineers who took the ACTAR test to get “qualified” but who only took one real accident reconstruction course at a reputable university that teaches the subject. In my estimation, one of the things that makes ACTAR highly dubious is the fact that one of its founding officials has also appointed himself an “institute” capable of issuing training certificates. Allowing a person to take an “accreditation” test who has taken one course in reconstruction seems similar to permitting a first aid technician to take the medical boards because he has read a lot of medical books and journals. Or how about letting some pro se litigant who got lucky and won a case take the Bar Exams because he read a lot of law books and is good at passing tests? Sound flaky? Well it is! That’s why some people consider ACTAR and their “tests” a back door stage pass for a lot of crumby ACTORS who use a simplistic test to circumvent the real training requirements for a reconstructionist!

In their own defense engineers sometime argue that reconstructionists merely take some “one week short courses” to acquire their training. This is a lot of bunk. 500 to 1000 hours in a classroom is a lot of training time no matter how you describe it. What reconstruction schools do is cram about a semester of work into 40 contact hours.

When I was in college full time, all courses were “short courses” lasting one semester. You got one hour a week in a lecture hall with a mumbling professor who nobody understood and two hours or so a week with a grad student who actually taught you something. Add up all the time with an instructor for a full semester and you got 40 to 45 hours or so for a course. Take an accident reconstruction course such as Human Factors in Accident Reconstruction and you have 40 hours with an instructor. Just about the same thing! Add up a bunch of courses pertaining to accident reconstruction and you have expended your 500 to 1000 hours. If you look at what many colleges are doing these days, they are moving in the same direction – cramming a full semester of study into a 40 hour program. I have seen 40 hour programs advertised for example, by the University of Michigan College of Engineering. Perhaps the major difference between the 40 hour cram course and the stretched out full semester 40 hour courses is that one approach only allows time for actual study while the other allows time for beer blasts, “panty raids,” debauched weekends and a lot of other miscellaneous wasted time the student can afford to kill since daddy is usually paying the tuition bill.

All this is not to say that there are not some really fine accident reconstructionists who are engineers. In fact there are. Some of the best reconstructionists in the US are also degreed engineers. Some go into reconstruction because they love it, not because they washed out of real engineering. But they generally have one trait in common with the dedicated reconstructionist who is not a degreed engineer. They too attend reconstruction classes in real reconstruction schools, just like the cops and civilian reconstructionists who take accident reconstruction courses there.

You might note that I specifically used the term “degreed engineer.” Just about anybody can be some

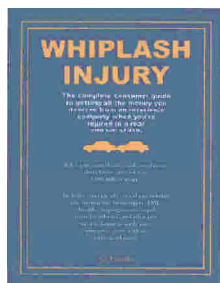
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kind of engineer without a degree. Steve Jobs who invented the Apple Computer had a degree in nothing. Bill Gates who gave us the Microsoft operating system was a college dropout. General Motors has in the past deemed staff accident reconstruction experts without an engineering degree to be “staff engineers.” While staying in a super high priced resort in Sanibel Island in Florida the bathroom sink clogged, so I called the front desk for help, at which time they assured me that a “maintenance engineer”

would be right up to fix the problem. Should anybody be ashamed to be called a plumber? Some of them make more money than doctors. Perhaps high priced resorts only employ “engineers.” Should anybody be ashamed to be called merely an “accident reconstructionist” without appending the “engineer” title which is merely an inappropriate affectation?

At the rate things are going, someday we may not have any more lawyers. They may all become “litigation engineers!”

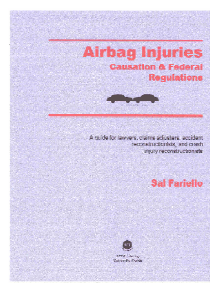
Here are two books by Sal Fariello that you should have in your library.



This is the book by Sal Fariello which lawyers everywhere have raved about. It has been updated regularly since first publication to keep it current (includes 2007 updates). If you ever handle so-called “minor impact” rear end or front end crash cases and need the real scoop on how injury occurs in

these crashes, how accident reconstruction and biomechanics are misused in these cases, and how to neutralize biomechanics experts, Whiplash Injury is the book for you. This book covers cervical and lumbar injury, brain injury and much more. Whiplash Injury is sold on CD in pdf format with all current update bulletins and amendments. To order the manual, send your law firm's check in the sum of \$44.95 payable to:

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Sal Fariello's Airbag Injuries, Causation & Federal Regulations is the only book of its kind in the world as of January 1, 2007. The book is 82 pages of the most powerful research into the issue of airbag-related injuries ever compiled in a single source. It is also the first publication ever to fully explore the issue of how

to determine the need for airbag deployment independent of any data provided by the vehicle manufacturer.

Mr. Fariello has a nearly 100% success rate as a consultant in airbag cases. If you have any need for information about airbags and related injuries, this is the book for you. To order the book on CD in pdf format, send your law firm's check in the sum of \$65.00 payable to:

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