



**PDHonline Course G129 (8 PDH)**

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# **The Engineer in the Courts**

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## The Engineer and the Courts

### MODULE #5: Case Study

#### 1. The Case

You are hired by an attorney as a technical consultant and expert witness to assist in a case where an operating electric ceiling fan in a restaurant had a blade break loose and strike a patron, severely injuring the patron's right (dominant) arm. Consider the roles of six different technical consultant/expert witnesses that are involved in the case. How would you function in each role?

#### 2. Technical Consultant/Expert Witness #1

The attorney that represents the plaintiff has hired you as a technical consultant and expert witness for the plaintiff.

- a. Who are the parties that should be included in the lawsuit? Why?

Answer: Every entity in the supply chain for the fan, from fan manufacturer thru fan installer, including the subcontractor that wired the fan. Every entity in the supply chain has some liability for that product; obviously some more than others.

- b. What evidence should be gathered? Why?

Answer: Technical information regarding the fan, including manufacturer's installation, wiring, balancing and maintenance recommendations. Drawings/schematics that may have been used by the installer and electrician that may differ from the fan manufacturer's recommendations. Records of the measured voltage at the fan motor terminals when power up by the electrical contractor to compare with the motor voltage tolerance recommended by the fan motor supplier. Documentation of any fan balancing that may have been done by the installer to compare with the recommendations of the fan manufacturer. Maintenance records for the fan to ascertain that the fan manufacturer's recommended maintenance was being performed by the restaurant owner or its maintenance subcontractor.

- c. What is the information that is needed to successfully try the case?

Answer: Documentation that indicates that some aspect of fan installation, wiring, or balancing was not in accordance with fan manufacturer's recommendations or governing Codes, or information that that this fan manufacturer's products have suffered a measurable number of similar failures; not necessarily on the same fan model, but fans in general supplied by this fan manufacturer. Documentation to support the claim of injury by the plaintiff will also be required.

- d. What are the tests/experiments that should be performed?

Answer: None; too great a probability of not being able to duplicate the failure desired. My gut would tell me to focus initially on "generic" problems with this fan manufacturer's products and on the balancing of the fan blades; how it was done and was it consistent with the fan manufacturer's recommendations. The only "test" per se I would recommend is a voltage test to determine that the voltage at the fan motor was within the tolerance of the fan manufacturer's motor voltage requirements. I would also recommend that the fan motor, housing and blades

be confiscated, including the failed blade so that by inspection one could determine if the fan blade balancing were done in accordance with the fan manufacturer's recommendations.

- e. Who would you suggest that the attorney depose in the case? Why?

Answer: The fan manufacturer so as to ascertain if there is a common mode failure with this fan manufacturer's products. The distributor to ascertain if the fan was stored and maintained in accordance with the fan manufacturer's recommendations while the fan was under its care, custody and control. The installer (general contractor) to ascertain if the fan was installed in accordance with the fan manufacturer's recommendations, including the balancing that would have been done after the electrical contractor finished its work. The electrical contractor, to ascertain if the wiring was done in accordance with the governing Code and the fan manufacturer's recommendations.

### 3. Technical Consultant/Expert Witness #2

The plaintiff's attorney has included the owner of the restaurant as a defendant in the case. The attorney representing the restaurant has hired you as a technical consultant and expert witness on the case.

- a. What theories of defense would you recommend that your client pursue?

Answer: I'm not really sure what a "theory of defense" is but I would adopt the strategy that the fan manufacturer was responsible for the design and manufacture of the fan; the general contractor was responsible for the proper installation of the fan, in accordance with the fan manufacturer's recommendations; the electrical contractor was responsible for power and control wiring of the fan, including checking to ensure that the fan and its motor were properly grounded and that the supply voltage was within the tolerance set by the fan manufacturer. The only obligation the Owner has, beyond paying his subs, is performance of any routine maintenance as recommended by the fan manufacturer.

- b. Who would you suggest that the attorney depose in the case? Why?

Answer: The fan manufacturer, the distributor, the general contractor and the electrical contractor because these are the primary entities in the supply chain that designed, built, installed, wired, and balanced the fan. In the absence of not having performed any recommended fan maintenance, the failure of the fan must rest with one of these entities.

- c. What evidence should be gathered? Why?

Answer: The same evidence as was identified above under Technical Consultant/Expert Witness #1.

- d. What is the information that is needed to successfully defend the case?

Answer: Information that supports the contention that the restaurant owner performed routine maintenance on the fan (and its motor) that was recommended by the fan manufacturer and made no other modifications to it or its installation after the fan was supplied, installed, wired, and balanced. I don't know how the issue of warranty may affect this case in that the fan blade failure may have occurred after the warranty on the fan and the warranty on the workmanship of the general contractor and the electrical contractor may have

expired. If all of the warranties have expired, I'm not sure if the restaurant owner assumes more (not all) of the liability in a case like this.

- e. What are the tests/experiments that should be performed?

Answer: Test the voltage level at the fan motor terminals.

#### 4. Technical Consultant/Expert Witness #3

The plaintiff's attorney has included the manufacturer of the fan as a defendant in the case. The attorney representing the fan manufacturer has hired you as a technical consultant and expert witness on the case.

- a. What theories of defense would you recommend that your client pursue?

Answer: Demonstrate that the fan supplied has a long history of uneventful operation with "thousands" of similar fans in service. Focus on fan installation, wiring, balancing, and routine maintenance as the root cause of the fan blade failure.

- b. Who would you suggest that the attorney depose in the case? Why?

Answer: The distributor, general contractor, electrical contractor, the restaurant owner to explore if the installation, wiring, balancing, and routine fan maintenance were in accordance with the fan manufacturer's recommendations. Also explore how the fan was stored on-site prior to its installation (stored outdoors in the elements or in a controlled environment).

- c. What evidence should be gathered? Why?

Answer: Restaurant owner's maintenance records; drawings and sketches used by the general contractor and electrical contractor during the installation and wiring of the fan/motor. Any test data recorded by the contractors, including voltage level at fan motor terminals at the time of powering up the fan, fan balancing data sheets (if any). Material receiving reports for the fan to ascertain in what condition the fan/container were in when they arrived on-site from the distributor.

- d. What is the information that is needed to successfully defend the case?

Answer: Information that supports the contention that the fan was not installed, wired, balanced, or maintained in accordance with the fan manufacturer's recommendations.

- e. What are the tests/experiments that should be performed?

Answer: Voltage test at the fan motor to ascertain if the voltage at the motor terminals was within the fan motor manufacturer's recommendations; inspection of the fan blades (all) to ascertain if fan blade balancing was done in accordance with fan manufacturer's recommendation.

#### 5. Technical Consultant/Expert Witness #4

The plaintiff's attorney has included the local distributor of the fan as a defendant in the case. The attorney representing the fan distributor has hired you as a technical consultant and expert witness on the case.

- a. What theories of defense would you recommend that your client pursue?  
Answer: This entity, presumably, has some liability in that it supplied the fan to the general contractor. Assuming that this entity did nothing more than receive the fan (in the shipping box from the fan manufacturer), stored the box, and then shipped or delivered the fan (in the same box) to the general contractor, his liability is similar to the fan manufacturer and his defense would be similar to that identified above under Technical Consultant/Expert Witness #3.
- b. Who would you suggest that the attorney depose in the case? Why?  
Answer: This entity is directly in the middle and should depose every entity in the supply chain and the restaurant owner. This entity did nothing to the fan except receive it from the fan manufacturer and deliver it to the general contractor (this is an assumption on my part but likely defensible). The distributor will have to prove that it stored and maintained the fan/motor in accordance with the manufacturer's recommendations while the fan was under its control. The "fault" must lie elsewhere.
- c. What evidence should be gathered? Why?  
Answer: The evidence that should be gathered is the same as that identified for the fan manufacturer.
- d. What is the information that is needed to successfully defend the case?  
Answer: First, prove that the fan delivered to the jobsite was intact (material receipt inspection report-if it existed). If that report did not exist, depose whoever was responsible for material receipt on the jobsite. Second, gather the information identified above to prove that either the fan manufacture was flawed, it was not installed in accordance with the manufacturer's requirements or the Codes that govern the work in that jurisdiction, or the fan was not maintained in accordance with the fan manufacturer's recommendations (fan maintenance records).
- e. What are the tests/experiments that should be performed?  
Answer: Same as identified above under Technical Consultant/Expert Witness #3.

#### 6. Technical Consultant/Expert Witness #5

The plaintiff's attorney has included the general contractor that built the restaurant. The attorney representing the general contractor has hired you as a technical consultant and expert witness on the case.

- a. What theories of defense would you recommend that your client pursue?  
Answer: Prove that the installation of the fan was in accordance with the Code that governed the work in that jurisdiction and that the fan manufacturer's recommendations regarding installation and balancing were followed to the letter.
- b. Who would you suggest that the attorney depose in the case? Why?

Answer: The fan manufacturer (to identify the installation and fan balancing requirements for the record and to ascertain if those recommendations were the same when the fan was installed) and were there any measurable common mode failures with these fans; the distributor to ascertain how the fan was stored while under the distributor's control (if stored in its shop for an extended period of time, were there any routine maintenance requirements that the fan manufacturer had that the distributor did or did not follow); the electrical contractor to ascertain if the wiring were in accordance with the governing Code and the fan manufacturer's recommendations; was the voltage checked and was it within the tolerance set by the fan motor supplier's recommendations; the restaurant owner to ascertain if routine maintenance was performed on the fan in accordance with the fan manufacturer's recommendations.

- c. What evidence should be gathered? Why?

Answer: Suggested installation, wiring and balancing directions from the fan manufacturer; drawings or sketches used by the general contractor and the electrical contractor during installation; any test records (voltage and amperage); balancing records, owner's maintenance records

- d. What is the information that is needed to successfully defend the case?

Answer: Information (drawings, test reports, and depositions) to support the general contractor's claim that it followed the Codes that governed the work and the fan manufacturer's recommendations for installation and balancing of the fan.

- e. What are the tests/experiments that should be performed?

Answer: Voltage test at the fan motor to ascertain if the voltage at the motor terminals was within the fan motor manufacturer's recommendations; inspection of the fan blades (all) to ascertain if fan blade balancing was done in accordance with the fan manufacturer's recommendations.

## 7. Technical Consultant/Expert Witness #6

The plaintiff's attorney has included the electrical contractor that installed the fan when the restaurant was build. The attorney representing the electrical contractor has hired you as a technical consultant and expert witness on the case.

- a. What theories of defense would you recommend that your client pursue?

Answer: Prove that the wiring of the fan was in accordance with the Code that governed the work in that jurisdiction and that the fan manufacturer's recommendations regarding wiring was followed to the letter. Prove that the voltage **when the fan was power up** was within the tolerance recommended by the fan motor supplier.

- b. Who would you suggest that the attorney depose in the case? Why?

Answer: The fan manufacturer to ascertain if there were any common mode failures of these fans and if the wiring recommendations or voltage tolerances have been changed by the manufacturer; the distributor to ascertain if the fan were stored and cared for while under the distributor's control were in accordance with the fan manufacturer's recommendations; the general contractor to ascertain what condition the fan was in when it was received at site and if the fan were installed and balanced in accordance with the fan manufacturer's recommendations; the restaurant owner to ascertain if routine

maintenance was performed in accordance with the fan manufacturers recommendations and to ascertain if the owner had any subsequent electrical work done on the fan or the electrical supply to the restaurant that may have altered the voltage supply to the fan.

- c. What evidence should be gathered? Why?

Answer: Maintenance records, material receiving reports, fan manufacturer recommendations regarding installation, wiring and balancing, construction permits that may have been pulled by the restaurant owner or its contractor subsequent to the fan installation and wiring work (for work that may have been done after the general contractor and the electrical contractor finished their work), any drawings or sketches that were used during the installation or wiring of the fan.

- d. What is the information that is needed to successfully defend the case?

Answer: Information (drawings, test reports, and depositions) to support the electrical contractor's claim that it followed the Codes that governed the work and the fan manufacturer's recommendations for wiring of the fan and proof that the voltage at the time the fan was powered up was within the fan motor supplier's tolerance recommendations.

- e. What are the tests/experiments that should be performed?

Answer: Voltage test at the fan motor terminals to ascertain if the voltage at the motor terminals was within the fan motor manufacturer's recommendations; inspection of the fan blades (all) to ascertain if fan blade balancing was done in accordance with the fan manufacturer's recommendations.

## Technical Consultant and Expert Witness for Plaintiff

### 2a-Parties to be included in lawsuit:

- Restaurant owner (franchisee or private), because they are responsible for restaurant and perhaps maintenance
- Restaurant owning corporation if a company location-same as above
- Restaurant Manager if different from the owner or corporation-same as above
- Fan Manufacturer, regarding possible defect in the fan-problem may be due to a product design or manufacturing defect
- Fan Installer-problem may be due to incorrect installation
- Distributor or retailer who sold the fan-may have been defective or missing a part
- Motor manufacturer if different from original part or if it's the original motor-problem may be due to a motor defect or original design defect
- City Restaurant Inspection Department-responsible for public safety and inspection of restaurants
- Any maintenance company employed by the restaurant owner to maintain the fan-problem could involve lack of or improper maintenance
- Manufacturer of the fastener that held the blades on-fasteners could be defective or substandard for application
- Retailer of the fastener that held the blades on-fasteners could be defective or substandard for application
- Manufacturer of the blades if different from above-blade could be defective or substandard for application, supplied on subcontract
- General Contractor-could have installed fan incorrectly, bought incorrect or defective fan. Also furniture or building features could have contributed to plaintiff not being able to avoid injury
- Electrical Contractor- could have installed fan incorrectly, bought incorrect or defective fan.
- Architect or Interior Designer if he or she specified the fan

### 2b-What evidence should be gathered and why?

- Broken blade, to ascertain make, model, failure mode, materials, damage
- Remains of fan-to help solve failure
- Photos and video of incident location-to document where incident happened
- Any additional missing parts from the fan, with info and reasons as in fan blade
- Age of the fan, installation date-to determine amount of wear, possible maintenance issues
- Records of manufacturer regarding similar failures-to see how common failure is
- Interview witnesses there during incident-to get idea of what happened from several perspectives
- Time of day, temperature in restaurant-perhaps could have implications on use
- Photos and video of any furniture, architectural items, etc to establish any features that contributed to plaintiff not being able to avoid fan blade
- Any physical issues that prevented the plaintiff from avoiding injury, such as disability-to establish inability to react in time
- Medical details of the injury, including prognosis for recovery



State of cleanliness of the restaurant floor or surfaces that may have contributed to injury

2c-What information is needed to successfully try the case?

- Injuries sustained
- Reasons if any why plaintiff could not avoid injury
- Cause of failure of the fan
- Medical details of the injury, including prognosis for recovery
- Responsible parties
- Parties who did not take action to prevent the incident from happening
- What actions were necessary by a responsible party to keep incident from happening
- Whether or not fan met any required safety standards
- Maintenance status of the fan relative to manufacturer's recommendations
- Maintenance status of the restaurant surfaces if slippage was a factor

2d-What tests/experiments should be performed?

- Fatigue, tensile and shear strength tests on blade fasteners, motor connecting parts, and blades
- RPM measurements on fan to confirm that motor turns at same speed as designed
- Floor and other surface friction tests if slipping on floor or furniture was a factor
- Physical therapy on the plaintiff to determine amounts of injury, permanent and temporary

2e-Who would you suggest the attorney depose and why?

- Witnesses in restaurant during incident-to get facts of incident
- Restaurant Manager-to assess level of responsibility
- Restaurant Owner, both private and corporate-to assess involvement in safety
- If Corporate, company safety and maintenance officers-to assess involvement in safety
- Restaurant employees involved-to get facts of incident
- Fan manufacturer-to assess fan design and whether this fan is standard, modified, or defective
- Maintenance company employee who serviced fan-to assess state and care of maintenance
- Maintenance company owner-to assess involvement in safety
- Medical first responders- to get medical facts of incident
- Doctors treating patient-to get medical condition and prognosis for recovery

Technical Consultant and Expert Witness for Defendant

3a-What theories of defense would you recommend?

- Maintenance subcontractor XYZ didn't maintain the fan per specs
- Franchiser, Retailer or Distributor ABC sold us the defective fan
- Construction company DEF or Maintenance company XYZ installed the fan incorrectly
- Plaintiff was doing something to the fan when incident occurred (if actually so)
- Fan could be a replacement for original spec unit
- Subcontractor Happy Family Fan Company provided defective fasteners

3b- Who would you suggest the attorney depose and why?

Restaurant owner (franchisee or private), because they are responsible for restaurant and perhaps maintenance  
Restaurant owning corporation if a company location-same as above  
Restaurant Manager if different from the owner or corporation-same as above  
Fan Manufacturer, regarding possible defect in the fan-problem may be due to a product design or manufacturing defect  
Fan Installer-problem may be due to incorrect installation  
Distributor or retailer who sold the fan-may have been defective or missing a part  
Motor manufacturer if different from original part or if it's the original motor-problem may be due to a motor defect or original design defect  
Any maintenance company employed by the restaurant owner to maintain the fan-problem could involve lack of or improper maintenance  
Manufacturer of the fastener that held the blades on-fasteners could be defective or substandard for application  
Manufacturer of the blades if different from above-blade could be defective or substandard for application, supplied on subcontract  
Witnesses in restaurant at time of incident

3c-What evidence should be gathered and why?

Restaurant maintenance records-to see who has responsibility and whether they met it  
Fan purchase records-to see if fan is original  
Remains of fan-to help solve failure  
Any additional missing parts from the fan, with info and reasons as in fan blade  
Any fan installation and maintenance records-to see if maintenance was properly done  
Maintenance subcontractor contract documents and evidence of their responsibilities in performing maintenance  
Evidence of any dissatisfaction restaurant owner(s) have had with Maintenance subcontractor

3d-What information is needed to successfully defend the case?

Any supporting evidence as above that will show the restaurant used their best efforts to do proper installation and maintenance, so that failure can be proven to be beyond their control or ability to ascertain in normal use

3e- What tests/experiments should be performed?

Fatigue, tensile and shear strength tests on blade fasteners, motor connecting parts, and blades  
RPM measurements on fan to confirm that motor turns at same speed as designed

Technical Consultant and Expert Witness for Fan Manufacturer

4a- What theories of defense would you recommend?

Maintenance subcontractor XYZ didn't maintain the fan per specs  
Maintenance or installation company damaged or modified the fan after it left the factory  
Fan selection by others was improper per our normal recommendations  
Franchiser, Retailer or Distributor ABC sold a defective fan that was somehow modified after it left our factory

Construction company DEF or Maintenance company XYZ installed the fan incorrectly

Restaurant company didn't maintain the fan properly within specs

Plaintiff was doing something to the fan when incident occurred (if actually so)

Subcontractor Happy Family Fan Company provided defective fasteners and/or parts that didn't meet our specs

4b- Who would you suggest the attorney depose and why?

Witnesses in restaurant during incident-to get facts of incident

Restaurant Manager-to assess level of responsibility

Restaurant Owner, both private and corporate-to assess involvement in safety

If Corporate, company safety and maintenance officers-to assess involvement in safety

Restaurant employees involved-to get facts of incident

Fan subcontractor-to assess fan design and whether this fan is standard, modified, or defective

Maintenance company employee who serviced fan-to assess state and care of maintenance

Maintenance company owner-to assess involvement in safety

Plaintiff-to see what if any actions they were doing to fan when incident occurred

4c- What evidence should be gathered and why?

Broken blade, to ascertain make, model, failure mode, materials, damage

Remains of fan-to help solve failure

Any additional missing parts from the fan, with info and reasons as in fan blade

Photos and video of incident location-to document where incident happened

Any additional missing parts from the fan, with info and reasons as in fan blade

Age of the fan, installation date-to determine amount of wear, possible maintenance issues

Interview witnesses there during incident-to get idea of what happened from several perspectives

Time of day, temperature in restaurant-perhaps could have implications on use

Photos and video of any furniture, architectural items, etc to establish any features that contributed to plaintiff not being able to avoid fan blade

If fans were specified by the architect or builder, what those specs were

4d- What information is needed to successfully defend the case?

Any supporting evidence as above that will show the manufacturer used their best efforts to do proper manufacturing and quality control, so that failure can be proven to be beyond their control or ability to ascertain if fan is in normal use

4e- What tests/experiments should be performed?

Complete inspection of the fan and parts against company standards

Fatigue, tensile and shear strength tests on blade fasteners, motor connecting parts, and blades

RPM measurements on fan to confirm that motor turns at same speed as designed

Microscopic examination of failure site to confirm means of failure

Technical Consultant and Expert Witness for Fan Distributor

5a- What theories of defense would you recommend?

Maintenance subcontractor XYZ didn't maintain the fan per specs  
Manufacturer sold us the defective fan  
Construction company DEF or Maintenance company XYZ installed the fan incorrectly or damaged, or modified it  
Plaintiff was doing something to the fan when incident occurred  
Restaurant failed to maintain fan per specs

5b- Who would you suggest the attorney depose and why?

Restaurant owner (franchisee or private), because they are responsible for restaurant and perhaps maintenance  
Restaurant owning corporation if a company location-same as above  
Restaurant Manager if different from the owner or corporation-same as above  
Fan Manufacturer, regarding possible defect in the fan-problem may be due to a product design or manufacturing defect  
Fan Installer-problem may be due to incorrect installation  
Retailer who sold the fan-may have been defective or missing a part  
Motor manufacturer if different from original part or if it's the original motor-problem may be due to a motor defect or original design defect  
Any maintenance company employed by the restaurant owner to maintain the fan-problem could involve lack of or improper maintenance  
Manufacturer of the blades if not original-blade could be defective or substandard for application, supplied on subcontract

Witnesses in restaurant at time of incident

5c- What evidence should be gathered and why?

Broken blade, to ascertain make, model, failure mode, materials, damage  
Remains of fan-to help solve failure  
Any additional missing parts from the fan, with info and reasons as in fan blade  
Age of the fan, installation date-to determine amount of wear, possible maintenance issues  
Records of manufacturer regarding similar failures  
Interview witnesses there during incident-to get idea of what happened from several perspectives  
Time of day, temperature in restaurant-perhaps could have implications on use

5d- What information is needed to successfully defend the case?

Any supporting evidence as above that will show the distributor used their best efforts to provide proper quality goods, so that failure can be proven to be beyond their control or ability to ascertain if fan is in normal use

5e- What tests/experiments should be performed?

Fatigue, tensile and shear strength tests on blade fasteners, motor connecting parts, and blades  
RPM measurements on fan to confirm that motor turns at same speed as designed

6. Technical Consultant and Expert Witness for General Contractor

6a-What theories of defense would you recommend?

Maintenance subcontractor XYZ didn't maintain the fan per specs  
Restaurant didn't maintain fan per specs  
Franchiser, Retailer or Distributor ABC sold us the defective fan

Maintenance company XYZ installed replacement fan incorrectly (if a replacement)

Electrical contractor installed fan incorrectly

Plaintiff was doing something to the fan when incident occurred

6b- Who would you suggest the attorney depose and why?

Restaurant owner (franchisee or private), because they are responsible for restaurant and perhaps maintenance

Restaurant owning corporation if a company location-same as above

Restaurant Manager if different from the owner or corporation-same as above

Fan Manufacturer, regarding possible defect in the fan-problem may be due to a product design or manufacturing defect

Electrical contractor-problem may be due to incorrect installation

Distributor or retailer who sold the fan-may have been defective or missing a part

Any maintenance company employed by the restaurant owner to maintain the fan-problem could involve lack of or improper maintenance

Witnesses in restaurant at time of incident

6c-What evidence should be gathered and why?

Restaurant maintenance records

Broken blade, to ascertain make, model, failure mode, materials, damage

Remains of fan-to help solve failure

Any additional missing parts from the fan, with info and reasons as in fan blade

Fan purchase records if bought by GC or restaurant

Any fan installation and maintenance records

Maintenance subcontractor contract documents and evidence of their responsibilities in performing maintenance

Fan manufacturer fan failure records

Electrical subcontractor purchase and installation records

Evidence of any dissatisfaction restaurant owner(s) have had with Maintenance subcontractor

6d-What information is needed to successfully defend the case?

Any supporting evidence as above that will show the General Contractor used their best efforts to do proper installation and maintenance, so that failure can be proven to be beyond their control or ability to ascertain in normal use

6e- What tests/experiments should be performed?

Fatigue, tensile and shear strength tests on blade fasteners, motor connecting parts, and blades

RPM measurements on fan to confirm that motor turns at same speed as designed

7. Technical Consultant and Expert Witness for Electrical Contractor

7a-What theories of defense would you recommend?

Maintenance subcontractor didn't maintain the fan per specs

Restaurant didn't maintain fan per specs

Franchiser, Retailer or Distributor sold us the defective fan

Maintenance subcontractor installed replacement fan incorrectly (if a replacement)

Electrical contractor installed fan incorrectly

Plaintiff was doing something to the fan when incident occurred

7b- Who would you suggest the attorney depose and why?

Restaurant owner (franchisee or private), because they are responsible for restaurant and perhaps maintenance

Restaurant owning corporation if a company location-same as above

Restaurant Manager if different from the owner or corporation-same as above

Fan Manufacturer, regarding possible defect in the fan-problem may be due to a product design or manufacturing defect

General contractor-problem may be due to management issues or specs

Distributor or retailer who sold the fan-may have been defective or missing a part

Any maintenance company employed by the restaurant owner to maintain the fan-problem could involve lack of or improper maintenance

Witnesses in restaurant at time of incident

7c-What evidence should be gathered and why?

Restaurant maintenance records

Fan purchase records

Any fan installation and maintenance records

Maintenance subcontractor contract documents and evidence of their responsibilities in performing maintenance

Fan manufacturer fan failure records

Electrical subcontractor purchase and installation records

Evidence of any dissatisfaction restaurant owner(s) have had with Maintenance subcontractor

7d-What information is needed to successfully defend the case?

Any supporting evidence as above that will show the Electrical Contractor used their best efforts to do proper installation and maintenance, so that failure can be proven to be beyond their control or ability to ascertain in normal use

7e- What tests/experiments should be performed?

Fatigue, tensile and shear strength tests on blade fasteners, motor connecting parts, and blades

RPM measurements on fan to confirm that motor turns at same speed as designed