

## **Timothy C. Korinek**

Synergy Technologies LLC  
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### **AREAS OF EXPERTISE:**

Metallurgical and Materials Failure Analysis, Fracture Analysis, Corrosion Damage, Casting and Weld analysis, Analysis of mechanical systems, Materials involved in electrical fires, Research.

### **PROFESSIONAL EXPERIENCE:**

#### **Synergy Technologies LLC, Cedarburg, WI, 12/12 to present Materials Engineer**

Perform metallurgical / materials failure analysis and investigations.  
Perform failure analysis on mechanical and electrical systems.  
Operate Scanning Electron Microscope, EDS, Digital X-Ray equipment, and other instruments.  
Carry out experiments and research on electrical overheating.

#### **Synergy Technologies LLC, Cedarburg, WI, 12/05 to 12/12 Engineering Technician**

Conducted investigations and authored reports for 100+ cases involving sump pump failures / water damage or well pump failure.

Performed failure analysis on a variety of systems, products and components such as appliances, electric motors, pumps, valves, toilet seats.

### **EDUCATION/CERTIFICATION/AWARDS:**

1. Bachelor of Science in Materials Engineering, 2012, University of Wisconsin Milwaukee.
2. Certified Fireplace & Chimney Inspector, Fireplace Investigation Research and Educational Service (F.I.R.E. Service), April, 2013.

### **CONTINUING EDUCATION:**

1. IAAI (International Assoc. of Arson Investigators), Wisconsin Chapter 25, General Fire Investigation Seminar, Topics: Managing Complex Scene Investigations, Fire Dynamics and Fire Protection Systems, Building Codes for Fire Investigators, HAZMAT Scenes and Case Study on Columbus, WI Chemical Plant Explosion, Stevens Point, WI, June, 2014.
2. IAAI (International Assoc. of Arson Investigators), Expert Witness and Courtroom Testimony course, Manitowac, WI, February, 2014.

3. IAAI (International Assoc. of Arson Investigators), Wisconsin Chapter 25, General Fire Investigation Seminar, Topics: Wildland Fire Investigation, NFPA 1033, Qualifications, Vehicle Fire Investigation, Arc Mapping, and Fuel/air Explosions, Brookfield, WI, November, 2013.
4. Dane County Arson Response Initiative (DCARI), September 21, 2013, Elevated Fires, Steve Carman.
5. Fireplace, Chimney, and Vent Inspection Seminar, F.I.R.E. Service, Moorpark CA, September 2013. Dale Feb, instructor. 48 hours, tested. Topics: Fireplace, chimney, and vent construction, inspection, NFPA 211, International Residential Building Code, failure modes, hands-on testing. Result of seminar was Certification as Fireplace Inspector.
6. Fire and Materials Conference, Interscience Communications, San Francisco, CA, January 2013.
7. Roofing Inspection Course, Fox Valley Technical College, Instructor: Joe Sprangers, May 10, 2010.
8. General Fire Investigation Seminars, IAAI, WI: June, 2009. Topics included Safety at the Fire Scene and Arc Mapping.
9. General Fire Investigation Seminars, IAAI, WI: June, 2008, Topics included: Large Loss Fires, Kitchen fires, and case studies.
10. Vehicle Fire Investigation Seminar, IAAI, Nov. 2006, Sun Prairie, WI, Topics included: Vehicle fires investigation seminar, hands-on investigation of one (pre-burnt) vehicle per group, verbal report for each group given to seminar attendees.

#### **SPEAKING ENGAGEMENTS:**

1. Fire and Materials Conference, Interscience Communications, San Francisco, CA, January 2013. Presented research findings on high resistance electrical connections

#### **PUBLICATIONS:**

1. "Pre and Post-Flashover Characteristics of an Electrically Heated Poor Connection between Copper and Steel". Fire and Materials Conference Proceedings, Interscience Communications, San Francisco, CA, January 2013.

#### **PROFESSIONAL AFFILIATIONS:**

1. National Fire Protection Association, NFPA, 2014.
2. ASM International, 2009.
3. The American Ceramic Society, ACS, 2009.
4. American Institute for Iron and Steel Technology, AIST, 2009.
5. The Minerals, Metals, and Materials Society, TMS, 2009.
6. International Association of Arson Investigators, IAAI, Wisconsin Member, 2006.