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What's Inside:

Ignition of walls Part 2

A Review of the Long-Standing Science Behind Arc Melting Identification

ITC2022 Photography Contest Winners



1st Place Accidental
Jesse Baldwin
Norman Fire Department
Norman Oklahoma



1st Place Arson
Tim Turley
Colorado Springs Fire Department



Ignition of walls

(Part 2)

This is the second, concluding part of Ignition of walls

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A Review of the Long-Standing Science Behind

Arc Melting Identification

Abstract

The identification of damage to electrical wiring is an important part of the examination of any electrical system that has been impacted by fire. The science behind these examinations has been described in peer-reviewed publications and is widely accepted in the fire investigation industry. However, recent papers have called this methodology into question. It is the goal of this paper to highlight the research that has been accepted by the industry as supporting the identification of arc sites and other damage to electrical wiring during a fire investigation.

Introduction

A paper published in the Lincoln Memorial University (LMU) Law Review has called into question the methodology used by fire investigators and practitioners, including electrical engineers, to identify damage on electrical wiring.

Abstract

In the investigation of fires, questions sometimes arise concerning the potential ignition of wall surfaces. Often, the question is whether a certain fuel package, burning by itself, has the potential to ignite a given wall type. Two ancillary questions are also likely to arise: How does the distance of the fuel package from the wall affect the outcome, and how would changing the wall material affect the outcome? This paper examines the research on the topic, and the available data. The question is relevant to both interior and exterior exposures, but at the level of detail analyzed, distinctions do not need to be made. It is shown that research is surprisingly scant and incomplete. But some guidance can be taken from existing studies. Furthermore, specific experiments may be needed if the desired questions cannot be answered based on available research. Some guidance is offered on conducting needed laboratory tests and also on interpreting existing test data. The scope of the study is small or medium burning fuel packages, and the paper does not explore ignition of walls from large, remote flames, such as emanating from a nearby burning building.

Ignition of combustible materials

The information collected to this point can now be focused on the specific problem: Will a combustible wall be ignited by a given heat flux exposure? At the start, it will be assumed that (a) the wall is a single layer of a combustible material; and (b) ignition is in the flaming mode. Subsequently, conditions will be examined where these assumptions may not hold. Three types of materials will be examined in some detail, since they exemplify classes of ignitable combustibles, but also due to their common use in construction: wood, gypsum, and Exterior Insulation and Finish Systems (EIFS). The last of these, EIFS, will be examined due to its common usage for exterior walls.

ELECTRICAL SHORTS



By Cameron J. Novak, P.E., ATF - FRL

Electrical Shorts #6:

AC & DC

Welcome back to Electrical Shorts. Last time, we summarized static electricity and its impact on our everyday lives. In this issue, we're going to dig into the differences between alternating current (AC) and direct current (DC). First, let's start with DC.

Direct current is a type of electricity with a constant voltage in which the current flows in only one direction and can be created by generators, batteries, or photovoltaic systems. DC is probably most familiar to us as the batteries in our electronics such as the television remote, our cellular phones, and our laptop computers. Equipment that runs on DC will have positive and negative terminals, which are usually red and black, respectively. A representative DC waveform is presented in Figure 1.

1.0

health & safety Committee Update



Jeff Pauley, M.S., IAAI-CFI, and CI, MIFire, Chair, Health & Safety Committee

News:

In the October 2020 issue, I wrote about the need for having a fire investigator present at larger or more complex scenes. This is also addressed in the new 3rd edition of Fire Investigator Health and Safety Best Practices, available at www.iaai-safety.com and as an e-book at <https://online.fliphtml5.com/bpgg>. In addition, this past Spring, we conducted a member survey to gauge interest in working on this topic, and the response was overwhelmingly in favor. Therefore, we expect to be ready to offer this important training early next year. If you are interested in learning more about hosting the Fire Investigation Safety course or the latest version of our health and safety training, Saving Lives Through Practices, at your agency or company, please email iaai-safety@firearson.com

Health & Safety In-depth: The Importance of Assessing Scene Safety

In the first responder fire service, the officer or person riding the officer seat of the first-arriving apparatus in most cases, should walk around the involved structure to assess the scene and its hazards - known as conducting a 360. They also compare the dispatch information with the scene observations, gathering information that is then shared with their crew and the other responding units. In that world, failing to note hazards can mean the difference between life and death. The first part of the post-fire scene safety process is the same as with the fire service first responders: surveying the scene before starting work is very important. Suppression activities can affect scene safety for us, so asking about tactics and actions is essential. Public fire investigators who arrive on the scene while suppression is still underway should check in with incident command, ask about known scene safety issues and be included in the accountability system. We should also speak with the first-in crew(s) to find out what they know. Finally, one should also walk the perimeter (conduct a 360) to identify any hazards firsthand once the IC clears it and knows that you are doing it. For fire investigators going to a scene after extinguishment is complete and everyone has left, questions also need to be asked. And asking the right questions is very important. The incident commander, members, the property owner, residents, and even the fire department. The important...

73rd ITC IAAI 2022

Investigator of the Year
Nicole Brewer
Portland Fire Bureau

George H. Parker - Distinguished Service Award
Jesse Moncada
San Antonio Fire Department Arson Bureau

Guy E. 'Sandy' Burnette - Outstanding Accomplishment Award

IAAI Outstanding Lifetime Achievement Award