

Documenting Scenes & Evidence in Three Dimensions

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Proper scene and evidence documentation is critical to successfully investigating and litigating subrogation claims. Thorough documentation is necessary for investigators to determine the origins and causes of losses, and so that subrogation professionals and attorneys can build strong liability cases against potential subrogation targets. While the concept of scene and evidence documentation is not new, the use of three-dimensional (“3D”) media as a tool for documentation is relatively novel. As the technologies become more common and accessible, 3D technology will likely play increased roles in subrogation investigations and trials.

3D SCANNING OF LOSS SCENES

Viewing loss scenes in three dimensions can provide valuable insight into how an incident was caused and the condition of the scene and surrounding property immediately following the incident. The following mechanisms for 3D scanning are on the cutting edge of scene and evidence documentation:

1. Lidar and Laser Scanning
2. 360-Degree Photographs
3. Drones

LIDAR AND LASER SCANNING

Lidar scanning is a combination of 3D scanning and laser scanning. It can be used to make hi-resolution maps, and may be helpful in a broad range of applications, including land surveying and for navigational purposes in some self-driving vehicles. Lidar scanning and laser scanning may prove useful in a subrogation investigation as they can provide a full picture of a building, including interior spaces. The images generated by Lidar and laser scanning are highly accurate and allow experts and professionals to take measurements within a structure based on the scans alone. This level of detail also allows investigators, attorneys and others to remotely view the scene and memorializes the scene for later analysis.



*Lidar scan of
a condominium
complex*

360-DEGREE PHOTOGRAPHS

One relatively easy way to capture a 3D image of a loss scene is to take a 360-degree photograph. These realistic images provide detailed panoramic views of a space from multiple angles and directions, revealing a life-like depiction of a scene. Specialized cameras and lenses are often utilized to take 360-degree photographs, and some smart phones and tablets also provide this capability.



*360-degree
photograph
of a residence*

DRONES

Drones have become increasingly common in recent years and have been utilized for recreational purposes, film shoots, news investigations, and surveillance applications, along with a host of other things. Drones can be used to provide detailed aerial views of loss scenes, and may be used to capture video footage or magnified photographs of areas that are otherwise inaccessible or unsafe for investigators to explore in person. Drone footage and photographs can help orient investigators and others with respect to large loss scenes, providing unique perspectives that are not attainable from the ground.



*Aerial image from
drone camera
taken during
warehouse fire*

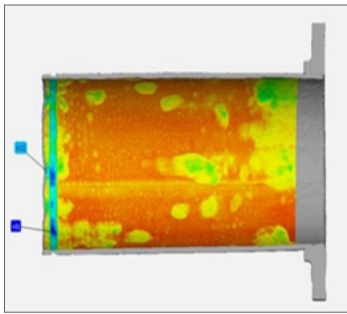
3D SCANNING OF EVIDENCE COMPONENTS

In addition to using 3D scanning techniques to document and investigate loss scenes, 3D scans may also prove helpful at examinations of specific pieces of evidence. Scanning evidence allows for the condition of the evidence components to be accurately documented prior to engaging in any destructive testing. Available means of scanning evidence in 3D include blue light 3D scanning and CT scanning.

1. Blue Light 3D Scanning
2. CT Scanning

BLUE LIGHT 3D SCANNING

Blue light 3D scans produce high-quality, 3D images of smaller physical objects, such as sections of pipe and electrical conductors. These 3D scans permit experts to observe and document the conditions of the scanned objects and take measurements nondestructively.



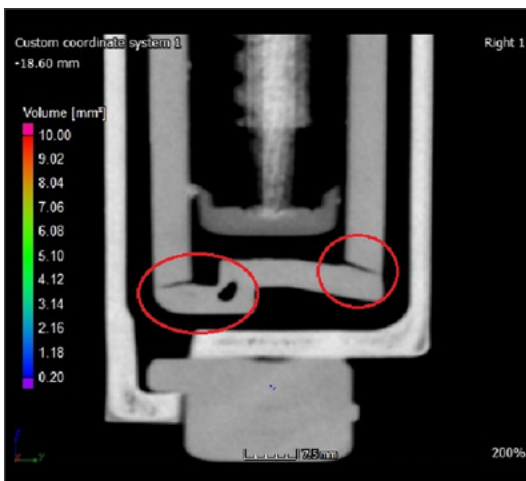
Blue light scan with heat mapping of pipe



Blue light scan showing arcing on high voltage electrical conductor

CT SCANNING

Performing a computed tomography scan, known as a CT scan, provides accurate 3D images of evidence components, including internal views of the evidence. CT scans are nondestructive and, because they are digital, allow for convenient preservation and dissemination of the images to interested parties. CT scans may be particularly helpful in determining the cause or specific location of a scanned component's failure, and documenting the fact that failure existed prior to – and did not occur during the course of – any subsequent destructive testing.



CT scan of water filter, indicating locations of cracks in filter

BENEFITS OF 3D SCANNING

During the investigation phase of a property damage incident, 3D scanning may be useful to thoroughly document the condition of the scene immediately after the loss. Capturing the scene in 3D may prove particularly beneficial if the scene is later disturbed or released before a potentially at-fault party has an opportunity to visit the site. In this circumstance, providing a subrogation target with detailed 3D images of the loss scene and evidence in their immediately post-loss condition may help avoid or potentially overcome a spoliation defense.

In addition, 3D scanning may assist experts in formulating and supporting their liability opinions, as well as thoroughly documenting those opinions for the purpose of a *Daubert* or *Frye* challenge in litigation. These scans also provide a valuable, visually appealing tool for presenting complex scientific evidence to juries at trial.

PRACTICAL CONSIDERATIONS FOR 3D SCANNING

3D scans can be expensive, depending on the type, and are usually most practical when investigating large, complex losses. Subrogation professionals must determine what type of scan is most appropriate for a given loss scene or evidence component, and then undertake a cost-benefit analysis. This analysis should account for the varying costs of the technologies themselves and of employing experts qualified to utilize the technologies, as well as the likelihood of litigation and potential evidentiary challenges that may arise in litigation.

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