

## Better Tools Make Better Experts & Better Demonstrative Evidence



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## Corporate Background



- Founded in 1987 as a group of United States Naval Academy Engineers dedicated to applying engineering principles to help clients successfully resolve a loss or litigation.
- 30 Years later expanding the model into six offices in 5 states.



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## Traditional Investigative Tools



- Photo
- Video
- Tape Measure
- Measuring Wheel
- Micrometer
- Light Meter
- Level
- Slip Meter



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### Better Tools Make Better Evidence & Experts



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### ...Test the Theory

- Testing theories of how accident occurred
- Testing similar products / Exemplars
- Testing to confirm product meets applicable standards
- Testing to confirm quality of the product



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### UAS / Drone – Safety and Time Savings



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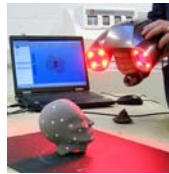
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### What is 3D Laser Scanning?

3D scanning is the process of capturing digital information about the shape of an object with equipment that uses a laser or light to measure the distance between the scanner and the object



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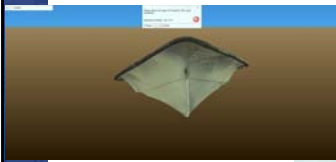
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### Example of 3D Scan “Fly Through” and rendering (video)



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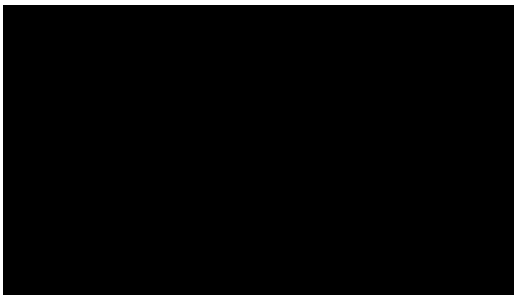
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### 3D Printing – What is it?



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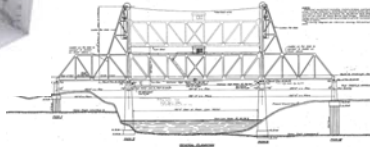
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### 3D Printing – Inputs & Benefits

- 3D laser scan data file
- CAD file
- Technical drawings
- Scaled evidence exemplar model
- Accuracy
- Repeatable use with different scales




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### 3D Printing – Case study

NOBLE DENTON

1000 Lakeside Drive  
 Suite 1000  
 Columbus, OH 43260  
 Tel: 614.291.0000  
 Fax: 614.291.0001  
 www.noble-denton.com

Tucker Ellis & West LLP

"Dorothy Ann" Stevedoring vs. Marquette Board of Light and Power, et al."



"DOROTHY ANN"  
Damage to Port Propeller - April 21, 2008

Rebuttal Report  
Issued at the request of Tucker Ellis & West LLP, 1100 Huntington Building, 825 East  
Avenue, Cleveland, Ohio

February 7, 2011




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### 3D Printing – Case study



Str. Herbert C. Jackson

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# International Marine Consulting Associates (IMCA) 2017



MARINE EXPERT MATRIX		Years Experience	Fire / Explosion	Marine / Composites	Marine / Systems	Marine / Survey	Naval Architecture	Offshore Structures	Human Factors	Ballast Water Treatment	Propeller Steer	Cable / Monitoring	Product Standard Compliance
Bruce Angel	42		X								X		X
Mike A. Brown, P.E.	25		X					X				X	X
Scott Brock, Ph.D., P.E.	17			X			X	X	X	X	X		X
Greg Cotton, Ph.D., P.E.	30			X									
James A. Coye	34			X	X							X	X
William Dancy, P.E.	43			X				X	X	X	X	X	X
Duffey Dawson, P.E.	40			X			X		X				X
John Farnetto, P.E.	36		X										X
Harold Eshelman, II	40				X								
Paul V. Freary	56	X											X
E. Charles Gane, P.E.	45	X		X	X							X	X
James E. Gels	38							X					
Henry G. Glick	49						X	X				X	X
Steve Hebert	23	X			X								
Richard W. Henderson, Ph.D.	36	X	X										
Henry Kuhn, LEI	8	X		X				X					
Robert Kraus	46	X	X				X	X					
Dan F. Kuzny, P.E.	56			X				X					
Robert Mackinnon	43			X				X	X			X	X
Robert Milroy, P.E.	43			X				X					X
Michael Mowbray, Ph.D.	12			X			X	X	X				X
Greg Paulsen, P.E.	19	X		X			X	X			X	X	X
Bruce Peard	36		X										
J. Jeffrey Seiler	45			X			X						X
Thomas Scandola, P.E.	35	X		X			X	X				X	X
George Wharton, P.E.	18	X		X			X	X				X	X

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# Questions & Answers



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