

# 3D Solutions

## News on The Use of Laser Scanning Technology

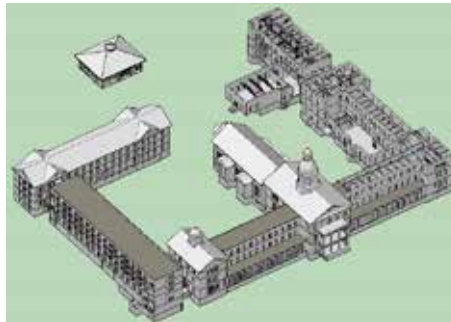
**Haag 3D Solutions is a technology and services company specializing in the application of 3D imaging and BIM technologies. Haag 3D is a division of Haag Engineering, forensic engineers & consultants since 1924.**



3D Solutions

### St. Charles Borromeo Seminary

H3DS provided 3D laser scanning and as-built modeling to assist St. Charles Borromeo Seminary with their plans to consolidate operations on a portion of its Upper Campus, located in Wynnewood, PA. Contracted by Aegis Property Group, a real estate services company that provides real estate development management, project management and transaction management, H3DS was required to provide 3D Laser Scanning of the historic 215,000 square foot facility in



order to develop existing 2D floor plans and 2D building elevations, as well as a 3D CAD model. The Upper Campus consists of Ryan Memorial Library, St. John Vianney Hall, Theology Buildings – Main and Wing, Immaculate Conception Chapel, St. John Neumann Hall with a laundry and a boiler room, St. Edmond Hall and a free standing garage behind St. Edmond Hall. The unusual architectural aspects of these five separate buildings offered a set of unique and challenging spaces to measure and document accurately.

No historic architectural plans were available for any of the 19<sup>th</sup>-century historic buildings on the seminary's upper campus complex, so accurate as-built documentation was crucial for master planning the consolidation effort. The goal of this project is a comprehensive and sustainable renovation of these aging Upper Campus buildings, to enable the Seminary to continue to meet the needs of Philadelphia's Catholic Community for generations to come. By creating an as-built 3D model from 3DLS data, H3DS was able to document the interior of the buildings to locate walls, doors, openings, windows, floors, ceilings, roofs, landings and porches, and major exposed structural columns and beams. Modeling was also performed for all mechanical equipment, ductwork, and piping over a 2" diameter, as well as all electrical equipment and conduit banks and individual conduits over 2" in diameter.

### Events:

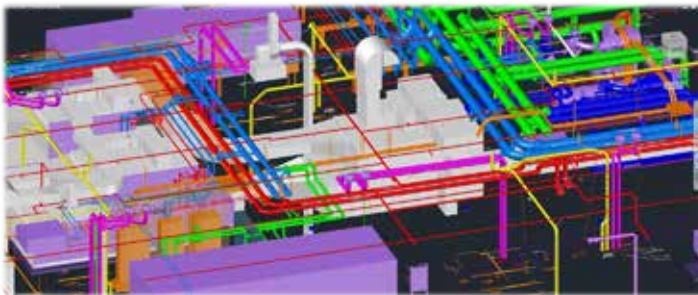
- April** 11<sup>th</sup> Annual National Property Subrogation Strategies ExecuSummit  
Uncasville, CT "Changing the Way We Document" presented by Chris Zmijewski
- Colorado Springs** SPAR International Conference  
Presenters included Chris Zmijewski, Kevin Kianka and Robert Ashley
- Houston,** ESRI Petroleum GIS Conference,  
Participants: Kevin Kianka and John Wlascinski
- June** Hexagon Live Conference  
Las Vegas Attended by Chris Zmijewski and Robert Ashley
- Chicago** AIA Convention (American Institute of Architects)  
Chris Zmijewski and Susan Freeman, Haag's VP of National Accounts
- The Woodlands** Anadarko Fun Day  
Cheryl Markstahler, Haag's Dir. of Marketing, and Jason Clark
- July** CMSC-Coordinate Metrology Society Conference  
Charleston

## 3D Coordination/BIM for MEP Contractors

Haag 3D Solutions has recently expanded its services to include 3D Modeling and BIM Services in the Construction Industry with particular expertise in Electrical Construction and support in Mechanical and Plumbing Construction. With the recent addition of Alessandro (Sandro) Dantz, new services include 2D/3D system modeling, Clash Detection, 3D Coordination, Shop Drawing creation and general construction coordination. Electrical systems which can be modeled & coordinated include power distribution equipment, medium and low voltage feeders, major/minor power feeders & boxes, communication infrastructure, interior/exterior lighting, emergency power systems, and all other major components in this classification.

Communication between the design team and contractors during the construction coordination process is key to a successful project. H3DS' staff has served as both coordination leads and coordination support of construction projects and can fill the roles requested by contractors in these duties. Using virtual meetings and design collaboration tools, H3DS can provide staff onsite or virtually to assist on any project.

H3DS is currently working on and bidding on projects across the nation to provide 2D-3D conversion and shop drawings, in addition to general coordination of 3D models for construction. Contact our Mount Laurel, NJ office at 856-206-9486 to discuss your upcoming MEP construction project with Sandro.



## CAD Corner

The External Reference or X-Reference feature allows the AutoCAD operator to save time from making the same change to several similar drawings. An X-reference is a drawing, typically a floor plan (for building) or an existing conditions survey (for site work), which can be shared by several operators at one time, and acts as a drawing overlay, to which other important drawings can be coordinated. It also helps the CAD technician with file size when working on multi-story building. External References (XREF) are one of the most important concepts to understand in a CAD environment.

The premise behind XREF's is simple enough: link one file to another so that any changes made to the source file, will show up in the destination file as well. An XREF is a graphic image of an external file that appears, and prints, inside your drawing just as if it were drawn inside that file. Imagine that you have a set of 300 drawings and the title block calls out the number of files (i.e. 1 of 300, 2 of 300, etc.) If you have put your title block in every plan as simple text then when you add another drawing to your set, you'll need to open every single file and modify the sheet numbers one at a time. Think about that for a moment. You'll need to open a drawing, wait for it to load, zoom to the text you need to change, modify it, zoom back out, then save and close the file. This change would take about two minutes, which is not that big of a deal for one file but if you need to do 300 of them, that's ten hours of time you'll spend just to change one piece of text. With an XREF, you make the overall text change once and it is updated on every sheet.

Uses for XREF's include title blocks, existing conditions (interior or exterior), proposed conditions, files broken down by trade (Mechanical, Electrical, Plumbing, Structural, etc.). The uses are endless.



## Alessandro Dantz



"Sandro" Dantz has over 5 years' experience providing 3D Modeling and BIM coordination for large scale commercial construction projects for several electrical contractors in the Philadelphia area. In addition, he has 2 years' experience working as a designer for architectural firms on commercial projects, including MEP coordination and detailing. Sandro's electrical experience includes providing and reviewing electrical estimates, 2D-3D Conversions, budgeting for BIM services, 3D BIM management & modeling for electrical construction, shop drawing preparation for field installations, and overall 3D coordination of MEP projects.

## Tenth Presbyterian Church Wall Monitoring

Located in Center City Philadelphia, the Tenth Presbyterian Church was originally designed by Philadelphia-based Architect John McArthur, Jr., noted for designing Philadelphia's City Hall (constructed in 1856). The church had exterior alterations designed (alterations constructed in 1893) by architect Frank Miles Day, who was noted for designing many buildings on the campuses of the University of Pennsylvania, Princeton University and Pennsylvania State University.

In the 1980's it was determined that the exterior wall of the church was not in its original constructed condition and was starting to lean. At this time, engineers and surveyors were brought on board to monitor the wall and make any necessary repairs. As part of this effort, it was determined that at a minimum, the wall would be monitored yearly to confirm that remediation measures were successful and no additional movement was detected. H3DS was awarded the contract in 2013 to document the wall using 3D Laser Scanning. In 2014, H3DS was again contracted to document the wall's location with 3DLS and provided TruView files and plans of the walls location for engineers to confirm.



## 2100 Ross Avenue Dallas, TX

H3DS has provided 3D documentation and as-built modeling services for the existing ground and 2<sup>nd</sup> floors of 2100 Ross Avenue for the construction of a 3D sculpture. Working with the building owner (Cousins Properties) and the artist (Formations Studios), H3DS has provided a baseline documentation and an as-built steel location for this signature art project located within the Dallas Arts District. H3DS will continue to provide support throughout construction and provide final as-builts after all construction is completed. Check out the artist's rendering...

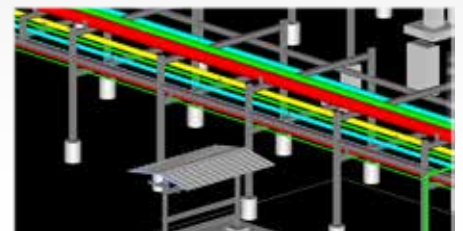


## Working together as one Team



Haag Houston's Oil and Gas Solutions Team combines the resources and expertise of **Haag Engineering**, **Haag Construction Consulting** and **Haag 3D Solutions** to provide innovative solutions to issues and problems that arise on and around Oil and Gas sites. Haag can assist with the life cycle of an O&G site, from conception, to planning, construction, operation and finally decommissioning. Additionally, in the event of an unexpected loss, Haag can provide forensic and litigation support.

Recent projects include documentation of multiple pad sites for an E&P company, including P&ID walkdowns of the facilities, forensic services related to defective products at a production facility, and 3D modeling of a facility to assist the design team with a proposed retrofit.





**Haag 3D Solutions** provides professional 3D geospatial solutions for all types of design and construction projects. Haag 3D Solutions, LLC is a technology and services company specializing in the application of 3D imaging and BIM technologies, delivering highly accurate and reliable as-built documentation for both public and private sector clients. Having completed hundreds of 3D Laser Scanning and BIM assignments throughout North America, the Haag 3D Solutions team has gained a uniquely practical familiarity with 3D Laser Scanning technology and processes and offers real solutions to a wide variety of measurement and physical documentation tasks. Haag 3D is a division of Haag Engineering, forensic engineers & consultants since 1924.

The **Haag 3D Solutions** division is located in Mt. Laurel, NJ and Houston, TX, and compliments the entire Haag Engineering team and offices throughout the United States.

**Office Locations:**

Dallas, TX  
Houston, TX  
Austin, TX  
Los Angeles, CA  
Minneapolis, MN  
Tampa, FL  
Denver, CO  
Atlanta, GA  
Mt. Laurel, NJ  
Nashville, TN  
Ft. Lauderdale, FL  
St. Louis, MO

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